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TRIBES OF THE RIF

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VOLUME IX

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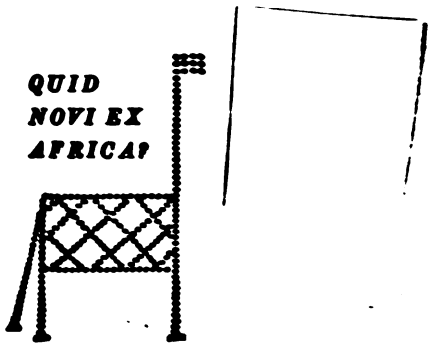
VOLUME IX

TRIBES OF THE RIF

BY

CARLETON STEVENS COON, PH. D.



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"This countrey is very pleasant and good, and you will take great delight (I am confident) at the Relation of this Journey, although I stand not to mention all particulars; and after the reading of it you will see, that they often, with us, make Monsters and Barbarians of those persons, who have nothing of it but the name, which indeed their Countrey gives them; and you will affirm, as I do, that they are people of real faith, and most obliging to strangers." — SIEUR ROLAND FREJUS, *Relation of a Voyage made into Mauretania in Afrik, in the year 1666.*

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PREFACE

In collecting the data upon which this book is based, the chief concern of the investigators was to obtain a sufficiently large series of anthropometric records from each tribe in the Rif, northern Senhaja, and from the Ghomara, so that the distribution of somatological characteristics in these areas might be determined with some degree of accuracy. So much of the expedition's time was spent in this pursuit that it was impossible to secure as much data on the subjects of religion and magic as was desired. Other elements of culture, both material and social, were easier to observe and record.

In presenting the data so gathered an attempt has been made not only to describe but to analyze as well, and to reconstruct from the living material the natures and order of cultural and racial changes in the north of Morocco, especially in their relation to the Berber world as a whole.

During our travels in Morocco I have unfortunately not learned any one Berber dialect well enough to work directly in it, nor to record phonetic texts. Such fine work is the province of Westermarck, of Biarnay, and of Laoust, whose labors I hold in especial esteem. In wealth of detail, my cultural material falls short of Westermarck's and of Laoust's, especially in the fields of magico-religious practices and of agriculture. Fortunately for me I was able to work in a region which I believe neither of them has visited, and hence am able to supplement their monumental compilations with first-hand data from a fresh quarter of Barbary. The time at which the bulk of these researches were made fell just at the close of the Riffian war, after Abd el Krim's surrender and before all of the tribes had renounced their freedom. Coming at that time I was luckily able to see Riffian life still led according to the old style, for a few weeks at least, and to record by witnessing them practices and customs now forever discontinued.

The Spanish authorities, from the highest to the lowest in rank, received us most cordially and generously set the assistance of their military organization at our service. I can never cease being grateful to them for a consideration and kindness which must have cost them considerable work and annoyance. So great was their hospitality that to prevent it from hindering work was sometimes a problem.

As to the Riffians themselves, it would be difficult for me to praise them too highly. Their keen comprehension, ready acceptance of the purpose of our inquiries, high degree of coöperation, and generous hospitality never failed to astonish us. Spain is indeed fortunate to possess such a protectorate. Its wealth of man power, the intelligence of its people, and the natural resources of the country will in time repay her amply for the deservedly con-

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siderate and friendly attitude which, so soon after the end of fighting, she has already begun to show in the administration of this conquered people, whose virile spirit of independence has for the first time in history been effectively curbed.

For patronage, advice, and aid in the completion of my research and in the publication of this volume I owe thanks to many persons, more than I could possibly enumerate. Professor Hooton first suggested this work, obtained funds for me, advised me constantly while in the field, taught me how to work up the statistical material, and gave much constructive advice in the preparation of the manuscript. Mrs. Oric Bates has most generously financed its publication.

Funds for the field trip of 1926–27, and for some of the subsequent analysis, were provided by the Bureau of International Research. The head of this body, Professor George Grafton Wilson, showed a kindly interest in the work, as did the late Professor Archibald Cary Coolidge.

In Morocco, the success of this expedition, as well as of that which took place in the summer of 1928, was due almost entirely to the coöperation of two persons, my wife and Mohammed Limnibhy. Travelling with me wherever I went, through the most difficult of conditions, despite poor health, recording without complaint for hours on end, while sitting on a dirt floor with a notebook on her knees, ministering to throngs of diseased persons, and helping the ethnological inquiry tremendously by observing and inquiring from women, my wife performed far more than her share of difficult work. Limnibhy, as interpreter, collector of ethnological data, anthropometric assistant, blood-letter, bodyguard, and diplomat supreme, showed himself to be a brilliant field worker on his own account. During the year which he later spent with us in America he was of incalculable assistance in helping put the first part of this volume into shape. Without the enthusiasm and unselfish assistance of these two persons this volume would have been a slim pamphlet indeed.

Among the American diplomatic and consular officers in Morocco I am especially grateful to the Honorable Maxwell Blake, our minister in Tangier, and to Mr. Russell, formerly consul in Casablanca. Both of these officials exerted themselves most cordially in our behalf, and secured our diplomatic standing with the Spanish officials.

A list of the Spanish officers to whom we are indebted for help and hospitality would be practically a roster of Spain's military staff in the Rif. Commandante Toneda of Melilla arranged our credentials for the entire Rif, and allowed me to measure in his office and in all of the markets of the eastern Rif, thus greatly facilitating the investigation. Colonel Paxtot of Tetwan allowed us to proceed to Sheshawen during a very trying period, and the officers at Sheshawen graciously entertained and assisted us for a week. In Beni Amart, Captain Sanchez Perez was likewise most hospitable and helpful. His ability to win over the respect and affection of a tribe which he had just been fighting marked him as a high type of colonial administrator.

Among the French officials, I received friendly advice and assistance from Dr. de

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Liouville, the head of the Institut Scientifique Cherifien; from the late M. Duclos, head of the Bureau des Renseignments; from Colonel Huot, in charge of the region of Taza, and from the General de Chambrun, of Fez. Officers at Aknul and Bured, in Gzennaya, gave us the hospitality of their posts.

Among the many native inhabitants of the country who treated us with especial kindness might be enumerated the Sheikh Si Moh wild el hajj Bukkeish of Tiddest; the Khalifa Absalem of Ikaroen; the Kaid Bu Kaddur of Temsaman, the Kaid Amar n Woshun of Beni Said, Ben Tato of Targuist, now a Spanish mokhazni; and the Malim Hamid of Taghzuth. Mohammed Guesus, a Fezzi resident in Boston, also gave me valuable assistance.

In the tedious work of statistical compilation which came as an aftermath to these trips I was assisted by Mrs. Barbara Wheeler, James Brewster, and various members of my family. The maps which appear throughout this volume were drawn by Elmer Rising, who also made the plate showing tatooing types. The one photograph used as an illustration which was not taken by the expedition, the picture of the Riffian skiing in Plate 1, was kindly given me by a Spanish officer at Imasinen of Beni Seddath.

Professor Glover Allen of the Zoölogy Department spent considerable time directing my untrained efforts at a zoölogical compilation, and made valuable changes in the proof; F. Tracy Hubbard of the Botany Department identified botanical specimens for me. For the use of unpublished anthropometric material I am indebted to Professor F. de las Barras de Argáon, to Dr. George Williams, to Robert Ehrich, and to Gordon Bowles. Professor Laurence Snyder of the North Carolina State College provided me with blood sample tubes and analyzed the specimens sent to him. Dr. Joshua Bloch of the New York Public Library, W. H. Sawyer of Bates College, and Dr. Curtis L. Sopher of Wakefield suggested useful reference material. J. T. Day of the Harvard University Press has been of great assistance in the preparation of this manuscript for publication.

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PART ONE

CULTURE

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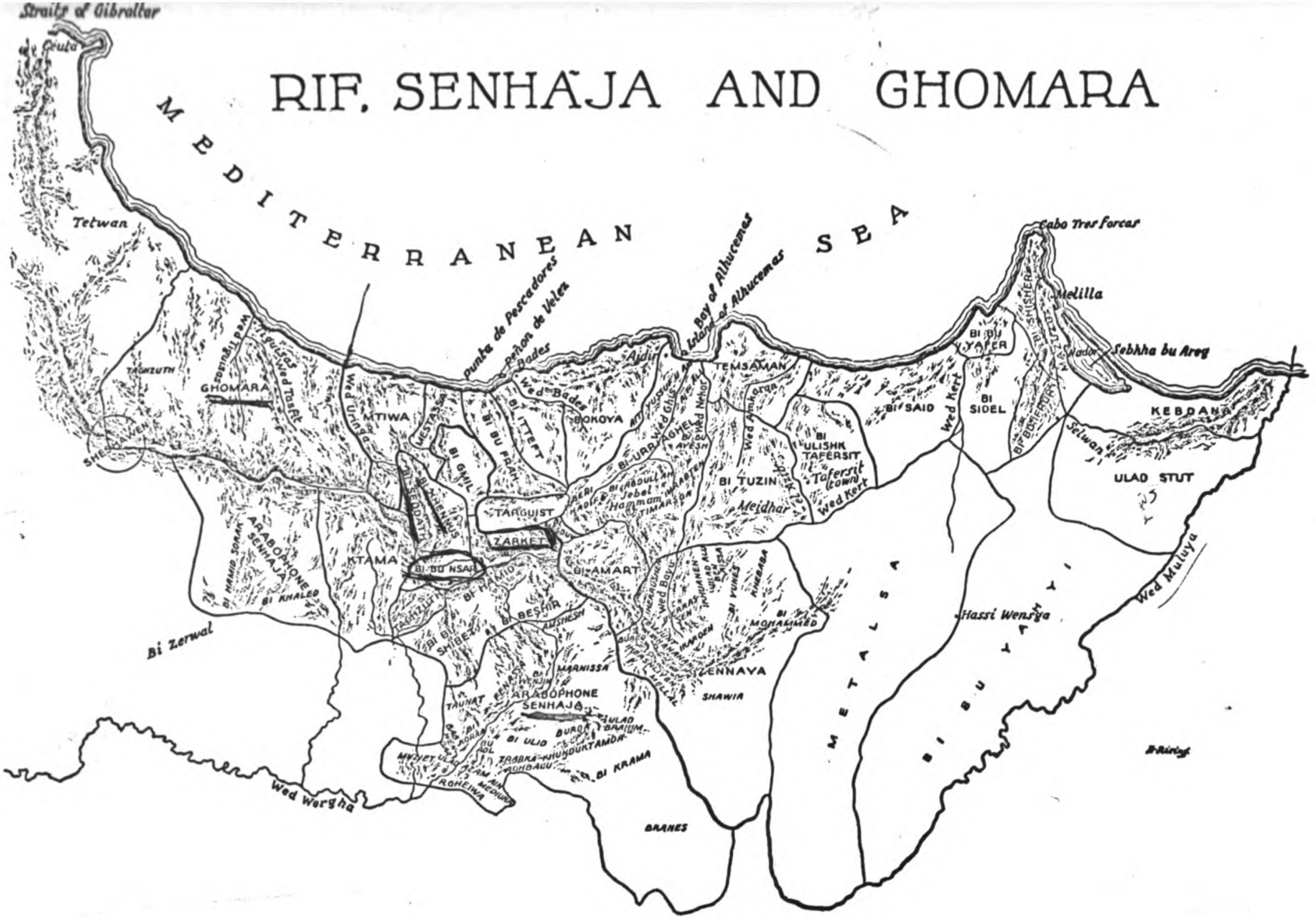

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CHAPTER I

INTRODUCTION

THE territory with which this book is concerned is of small area, despite the fact that it contains continental extremes of environment. It extends along the Mediterranean coast of Morocco from approximately one degree and twenty-six minutes west longitude to approximately one degree and twenty minutes east longitude, possessing about one hundred and forty-five miles of Mediterranean coast-line; its most northerly point is at approximately thirty-five degrees and twenty-nine minutes north latitude, and its most southerly at about thirty-four degrees and nineteen minutes north latitude. The greatest distance north and south in a vertical line in this area is approximately fifty-three miles. This territory, small as it is, includes three distinct provinces, or regions: the Rif, the Ghomara, and what may be called the Northern Senhaja.

TRIBAL BOUNDARIES

Rif. The Rif occupies the eastern portion of this area and is greater in size than the Senhaja and Ghomara combined. Its westernmost border is the Wed Uringa, which separates it from the Ghomara, and its eastern the Wed Muluya, which separates it from the Zenatan tribe of Beni Znassen and from the Arabs who live to the southeast of that stream. Of these Arab tribes, one has already encroached on Riffian territory by locating permanently west of the river — the Ulad Stut, a nomadic tribe of Bedawin, much mixed with Riffian blood.

There are eighteen more or less distinct tribes in the Rif proper. These are Kebdana, Galiya, Beni Said, Beni Bu Yahyi, Metalsa, Beni Ulishk, Tafersit, Beni Tuzin, Temsaman, Gzennaya, Beni Urriaghel, Beni Amart, Targuist, Bokoya, Beni Itteft, Beni Bu Frah, Mestassa, and Mtiwa.[1] The location of these tribes can be ascertained by a study of the map opposite page 3. It will be seen that the largest tribes geographically are Galiya (which includes Mazuza, Beni Shisher, Beni Sidel, Beni Bu Ifrur, and Beni Bu Yafer), Beni Urriaghel, Gzennaya, Metalsa, and Beni Bu Yahyi. The largest in point of population is Beni Urriaghel, next comes Gzennaya, and Galiya is probably third. The Beni Bu Yahyi and Metalsa, although they inhabit a relatively large territory, are not numerous; they are nomadic in habit and occupy a sparsely vegetated terrain.

One might divide the Rif geographically into three parts, eastern, central, and western. The eastern part would comprise Kebdana, Galiya, Beni Bu Yahyi, Metalsa, Beni Said, Beni Ulishk, and Tafersit. The central portion would comprise Temsaman, Beni Tuzin, Gzennaya, Beni Urriaghel, Beni Amart, Targuist, and Bokoya. The western part would be the maritime tribes, as they might be called — Beni Itteft, Beni Bu Frah, Mestassa, and Mtiwa.

[1] In giving these tribal names I have used the common Arabic equivalents for the Berber originals, since to render the Berber names as they are actually pronounced would involve a confusing use of phonetic symbols and would, furthermore, prevent the use of a standard system, since pronunciations of these names vary from tribe to tribe and in some cases within tribes.

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Senhaja. To the west and southwest of the Rif, nowhere touching the Mediterranean seaboard, is the Northern Senhaja, which may be divided into the Senhaja Sghir, or Little Senhaja, and the Arabophone Senhaja, composed of tribes extending to either side of the nuclear group. The Little Senhaja contains eleven tribes: Zarket, Beni Gmil, Beni Bu Nsar, Beni Khennus, Beni Seddath, Beni Hamid, Beni Beshir, Beni Bu Shibet, Beni Berber, Taghzuth, and Ktama. To these may be added Beni Mesduy, a tribe of two villages compressed between Targuist, Beni Urriaghel, Beni Amart, and Zarket. Politically, Beni Mesduy is divided between Targuist and Zarket; geographically, it is thrust into the side of the Rif; linguistically, it is Senhajan. Since the Beni Mesduy speak the same Senhajan dialect as the people of Zarket, and consider themselves to be remotely descended from the same ancestors, they are usually classed as Senhajan by the Riffians living near them.

Although this is not a work on linguistics, some reference to language cannot be avoided. The Riffians speak a peculiar dialect of Berber called *thamazighth*, which seems to be most typically represented in the central region, and grades into the Zenatan idiom as one passes eastward toward the Muluya. The people of Targuist have lost their Berber speech, speaking Arabic domestically, and the same is true to a lesser extent of the Beni Bu Frah, many of whom are ignorant of Berber. The peoples of Mestassa and Mtiwa are losing it rapidly.

The dialect spoken in the Senhaja Sghir, although possessing local differences between tribes, is distinctly different from any dialect of the Rif, and cannot be understood without study by a Riffian. Riffian and Senhajan speakers of Berber are forced to employ Arabic as a means of communication.

The Senhajan tribes which speak only Arabic are divided into two groups, those to the east of the tribe of Mtiwa dial Jbil (to be distinguished from the Riffian maritime tribe of Mtiwa, called, to avoid confusion, Mtiwa dial Bhar) and those to the west of it.

The Eastern Arabophone Senhaja contains nineteen units generally considered as tribes. These are Marnissa, Beni Krama, Branes, Amshesh, Beni Wenjin, Fenassa, Beni Ulid, Zrarka, Bu Adl, Beni Koraa, Ain Mediuna, Bab Wendar, Muziet, Rgheiwa, Aghbalu, Khunduktamda, Ulad Brahim, and Beni Bu Slama. Amshesh and Beni Bu Slama are but single settlements, occupied by religious devotees, the former located on the border between Beni Amart and Marnissa, and the latter between Beni Hamid and Beni Wenjin. Both retain Berber speech of the Senhajan variety. Zwawa, a small village of the tribe of Fenassa, likewise preserves Berber speech. Taunat el Uta, a village politically affiliated with the non-Senhajan tribe of Mtiwa dial Jbil, is said to be of Senhajan origin, and hence is included with the Eastern Arabophone Senhaja.

The Western Arabophone Senhaja, extending from the western border of Ktama to and beyond the city of Sheshawen, is perhaps not as purely Senhajan as the Eastern division. It includes the tribes of Beni Hamid Sorak, Ghazawa, and el Khmes, and two isolated villages separate from the rest — Tazeghudra, in the midst of the non-Senhajan tribe of Beni Zerwal, and Taghzuth, in Beni Hassan of the Ghomara. The latter lays claim to being an offshoot of the tribe of Taghzuth and preserves Senhajan speech.

Beni Hozmar, a tribe to the northwest of Sheshawen, is said to be Senhajan, but data are difficult to obtain, owing to the fact that the Riffian army in their advance on Tetwan during the recent war utterly destroyed the village of these people, and whatever inhabitants survived scattered, leaving their home territory uninhabited.

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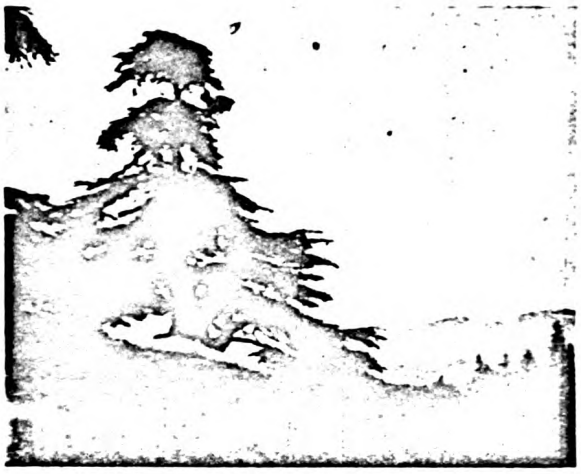
ENVIRONMENT 1

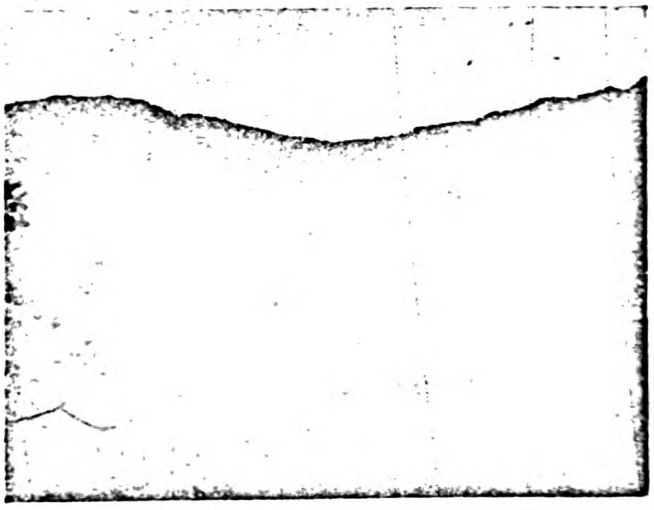
Mt. Meggu, behind Sheshawen



On the pass between Beni Bu Nsar and Taghzuth

Member of Riffian Ski-Corps on duty in Beni Seddath

Looking down on to the village of el Kelaa, Taghzuth



The valley of the Beni Bu Nsar

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Ghomara. The third great region is the Ghomara, which extends along the Mediterranean coast from Wed Uringa to Wed Lao, and is separated from the Senhaja by the main mountain crest. It is divided into eight tribes, Beni Ziat, Beni Zejel, Beni Selman, Beni Bu Zra, Beni Mansur, Beni Grir, Beni Smih, and Beni Rezin.

Of these Beni Bu Zra retains Berber speech in fairly complete form, and all the others employ Berber words mixed with Arabic. This Ghomaran dialect has never been studied, but seems to resemble Riffian more closely than does Senhajan, in that Riffian and Ghomaran are mutually comprehensible.

Other Berber Groups. This work is confined to a consideration of the Riffians, Senhajans, and Ghomarans because my material covers these groups only, and not because they are the only recognizable Berbers of northern Morocco. In the peninsula which culminates at Tangier and Ceuta lives another group, the Anjera, which although Arab in speech is distinctly Berber in appearance, and which is said to be related to the Riffians; to the south and west of the Senhaja are other tribes, such as the Beni Zerwal, which are certainly not Arab in origin.

The term *Jebala*, from the Arabic word for mountain, is generally used to distinguish the Ghomara, the Arabophone Senhaja, and the other Berber tribes of the northwest from the Riffians and from the Arabs. This term is unfortunately inexact, and hence is not employed in this work to designate any specific area.

PHYSICAL GEOGRAPHY

The most important topographical feature of this region is the high mountain chain which bends southward from Tetwan into the heart of the Senhaja Sghir, and then resumes an eastward course through the Rif until it fades down into a series of hills in Metalsa and Beni Bu Yahyi to crop up again, thrusting northeastward, in Galiya, and carrying the land of that tribe out into the Mediterranean at the Cabo Tres Forcas. Although the crest of this range is in most places nearly thirty miles from the Mediterranean coast, the shore line itself is rough and craggy, since the mountains carry much of their height to the very water's edge, where they descend with a sharp drop. The mountains are higher in the west than in the east. Adhrar Tidighin, partly in Beni Khennus and partly in Beni Seddath, is the highest in the range, reaching an altitude of 2,549 meters [1] in one peak and 2,455 meters [1] in another; it is covered on the north side with a permanent layer of snow. Although Tidighin is the highest peak, it does not far surpass its neighbors. Between Taghzuth and Beni Bu Nsar, slightly southeast of Tidighin, is another mountain of great height and majesty, called the mountain of Taghzuth, 2,330 meters [1] high. In the Rif itself the highest points of the divide are Kuin, 1,883 meters,[1] and Tizi Uzli, 2,006 meters,[1] both in the Gzennaya. The Jebel Hammam, in Beni Urriaghel, attains about the same height, 1,948 meters, [1] but does not fall in the direct line of the watershed.

The divide itself runs between the Ghomara and the Eastern Arabophone Senhaja; it separates Ktama from Mtiwa of the Rif, and Beni Seddath and Beni Khennus from Beni Bu Nsar (although in truth these three tribes might be said to perch on top of it); runs through Zarket, setting Targuist on one side and Beni Hamid on the other; and cuts through the middle of Beni Amart, along the range of Tizi Ifri, and across the top of Gzennaya, along

[1] Map issued by the Service Géographique du Maroc, Rabat, March, 1926. Scale, 1: 20,000.

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Kuin, Akhfiligum, and the pass of Tizi Uzli, thus placing a portion of Gzennaya in the Nekor drainage along with Beni Tuzin and Beni Urriaghel. East of Gzennaya the ridge loses its great importance, and the country sinks down into a flat, arid plain, occupied by Metalsa and Beni Bu Yahyi, while to the north of these tribes it springs up again, pointing northeast and separating the drainages of the two Mediterranean-flowing rivers, the Kert and the Muluya.

In the midst of Gzennaya, at Ihershliyen and Azru Ukshar, the range ceases to be the Atlantic–Mediterranean rainshed, for the ridge passing north and south through Azru and Mellal separates the drainages of the Wergha and the Muluya. Gzennaya is thus the apex of the crest: in it are found the beginnings of three drainage systems, and there the mountains reach their greatest height east of the Senhaja Sghir.

These mountains are said to be of Tertiary origin and to be an extension of the Cordillera Betica in Spain.[1] Marmol describes an active volcano in what must be today Beni Bu Shibet or Beni Beshir.[2] Since his book was written in 1573 and since no tradition survives of a volcano anywhere in northern Morocco, it is quite possible that he was mistaken, since the tradition of so impressive a natural feature would surely have endured three and a half centuries.

The region with which we deal, along with the strip which connects it with the Straits of Gibraltar, is said to have been a part of Europe as late as the Miocene[3] period, and to have been separated from the rest of Morocco by sea. Indeed, the unattractive plain of the Garet, occupied now by the Metalsa and the Beni Bu Yahyi, has every aspect of a withered sea-bottom, and fossils of ocean molluscs have been found in it.

The short distance from the ridge to the Mediterranean littoral is traversed by numerous small torrential streams, perennial only near the mountain tops, where the coat of forest has not yet been wholly hewn off. Another reason for their seasonal dryness is that except during the season of storms the farmers living along the upper reaches lead off all the water in irrigation ditches, leaving none for the people lower down.

The Wed Lao forms the western boundary of the Ghomara; next to the east flow the Wed Tiguisas and its branch the Wed Tasfit, forming the boundary between Beni Ziat and Beni Bu Zra; and between the Tasfit and the Uringa, which form the boundary of the Rif, flow two smaller streams, Wed Seba Zawiat and Wed Mthir.

The Wed Uringa, along three fourths of its course, demarcates Mtiwa of the Rif from the Ghomara, but in its upper section the boundary shifts to the ridge to the west of its drainage. The next important river to the east is the Wed Mestassa, which empties into the sea at Mestassa, skirts the western edge of Beni Gmil, and has its source in the lofty peaks of Beni Khennus. East of the Mestassa flows the Wed Ferrah, or Frah, through the middle of the tribe of Beni Bu Frah, commencing in the mountain north of Targuist. East of this stream runs the Wed Bades, originating between Beni Itteft and Targuist, traversing the area of the former tribe, and emptying at the ruins of Bades opposite the island of Peñon de Velez. Next comes the Wed Buhem, originating in the Beni Hadifa section of Beni Urriaghel and crossing the tribe of Bokoya.

Emptying into the bay of Alhucemas are the two most important rivers of the central Rif, the Ghis and the Nekor, their mouths lying side by side and combining to form a broad

[1] Louis Gentil, *Le Maroc Physique*, pp. 89–90.

[2] Caravail Luys del Marmol, *Descripcion d'Affrica*, bk. iii, chap. 84.

[3] Gentil, p. 94.

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delta. The course of the Ghis slants southwestward from Targuist, while the Nekor flows directly northward through sharp canyons from the mountain of Kuin in Gzennaya, to separate, farther along, Temsaman and Beni Tuzin from Beni Urriaghel. On the other side of the promontory of Temsaman empties the Amkaran, or Wed el Kebir, which commences a short distance away in the mountains of Beni Tuzin. Next to the Amkaran lies an unimportant stream called the Tasagin, coming down from the Dhar O Baran in Beni Ulishk. Beyond this there are none but the important arteries of the Kert and the Muluya, the former of which originates in Gzennaya, the seeming umbilicus of the Rif, and the latter of which flows northward from distant Tafilelt, where its head lies near that of the Draa, a lengthy watercourse emptying into the Atlantic nearly opposite the Canary Islands.

Such is the catalogue of rivers, the waters of which are jealously guarded and conserved, and which have been the cause of many of the local wars in the Rif.

The mountains of the Rif are supposed to be fabulously rich in minerals, including coal, iron, gold, and petroleum. None of these, however, have been extracted by the present inhabitants of the country, and hence they do not concern us here. Suspicion engendered by the presence of the minerals does more to hamper travel and research in the Rif than all other factors combined.

VEGETATION

It is too early in the course of Riffian research to give a complete list of botanical species from that country; no systematic botanist, as far as I know, has published any description of its flora. It will therefore have to suffice in this volume to present merely a very fragmentary roster of some of the more noticeable wild trees and bushes, such as readily meet the eye of the traveler, with local names and tentative identifications, made by observation and by analogy with the rest of North Africa.

Conifers

taidha, a tall, straight-growing conifer, with a large globular cone. This tree is much prized for house-building material.

taidha temjda, a similar tree, relatively stunted, with thick, wide branches. The *taidha* is found on the upper slopes of mountains; the *taidha temjda* grows on the mountain-tops and in the passes, where it is exposed to the elements: hence both may belong to the same species. (Plate I shows examples of both.)

Justinard calls the *taidha* a pine.[1] Hanoteau and Letourneau list for Algeria four species of terebinths; *Pistacia terebinthus L.*, *P. Atlantica Desf.*, *P. Lentiscus L.*, and *Rhus pentaphylla Desf.*[2]

takka, another conifer, with a small, compact cone. The wood of this tree is used in making tar. (Perhaps its name is related to the Ntifa word for terebinth.[3]) Justinard calls this a juniper.[4]

afezaz, the scrub juniper (not to be confused with *afesas*). Laoust postulates that the Berber root *zz* indicates the idea of spines or thorns, and cites other words, in Berber dialects, which contain this root and mean juniper.[5]

[1] Commandant Justinard, *Manuel de Berbère Marocain (Dialecte Rifain)*, p. 48.
[2] A. Hanoteau and A. Letourneau, *La Kabylie*, vol. I, pp. 82–83.
[3] E. Laoust, *Mots et Choses Berbères*, p. 487. [4] Page 131. [5] Page 523.

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riarz, a cedar, growing very tall and straight. Its sweet-smelling wood is valued by carpenters and cabinet-makers.

amerzi, another cedar, with very volatile reddish wood. Its pitch and resin are used as medicine.

rkanus, a similar tree, considered by the Riffians to be the female of the *amerzi*.

The cedars, generally known under the name of *thuya*, or *arbor vitae*, form the characteristic coniferous vegetation of North Africa.[1]

Other Trees

rbejuth, an evergreen oak, with edible acorns.

tashta, another species of oak, with inedible acorns.

rbejuth n yirif, the so-called pig-oak. Its acorns are eaten by wild boars, but not by men on account of their bitter taste. Justinard lists as oak *adren*, calling *abedjoud* the acorn.[2] The latter word is derived from the Arabic *el-bellut*, the difference in renderings being due, aside from different techniques in transcription, to my retention of the *r*, the berberization of the Arabic definite article, in the Riffian dialects. I have always heard it pronounced with the *r*. Hanoteau and Letourneau [3] identify five oaks in Algeria: *Quercus castaneaefolia C. A. Mey.*, *Q. Mirbeckii Dr.*, *Q. Ilex L.*, *Q. Ilex var. Ballota*, and *Q. Suber L.*

adheman, the hawthorne. This tree is used as a base for grafting pear and apple shoots. Hanoteau and Letourneau give *Crataegus Oxyacantha* (three varieties), *Cr. Azarolus*, and *Cr. monogyna* for Algeria.[4] Laoust identifies *Cr. Oxyacantha* in Morocco.[5]

asanu, the arbute, or strawberry tree. Its fruit is eaten fresh, and also dried and put into bread; the wood is used in house construction. Laoust finds it in other parts of Morocco, and gives it the botanical name *Arbutus unedo*.[6]

fathis, a large tree bearing a small red fruit, which is eaten. The ashes of its wood are mixed with water, in which grapes are washed before being set out to dry. These ashes are also used as soap in washing cloth. Westermarck [7] calls this the lentisk, *Pistacia lentiscus*.

azemmur, the wild olive. Its fruit is not eaten, but its wood is used in making spoons, ploughs, and other objects.

thazemmurth, the female of the *azemmur*, smaller than the male. The male can be used for grafting domestic olives, but the female is never used for this purpose.

za'awiz, a large tree with perennial foliage. It bears a seed containing a red liquid. The wood of this tree was formerly used for gunstocks.

thaghieshth n wushun, a species of wild walnut, called jackal-walnut.

afesas, perhaps a spurge-flax, or broom. It is a bush with a red flower, growing in valley bottoms. Laoust gives *Daphne Gnidium L.* for *walezaz*.[8] Hanoteau and Letourneau name three species, *Daphne oleoides Schreb.*, *D. Gnidium L.*, and *D. Laureola L.*, for Algeria.[9] This plant has been mistaken by other botanists for an osier, on account of its extensive use in basketry.[10]

thabgha, a wild blackberry. Justinard affirms this designation.[11]

[1] Justinard, p. 159; Hanoteau and Letourneau, p. 69; el Bekri (tr. Macguckin de Slane), p. 15 n.
[2] Page 117. [3] Page 119. [4] Pages 48, 89. [5] Page 509.
[6] Pages 483–484, 519. [7] Edward Westermarck, *Ritual and Belief in Morroco*, vol. II, p. 185.
[8] Pages 515–516. [9] Page 116. [10] Laoust, pp. 515–516. [11] Page 143.

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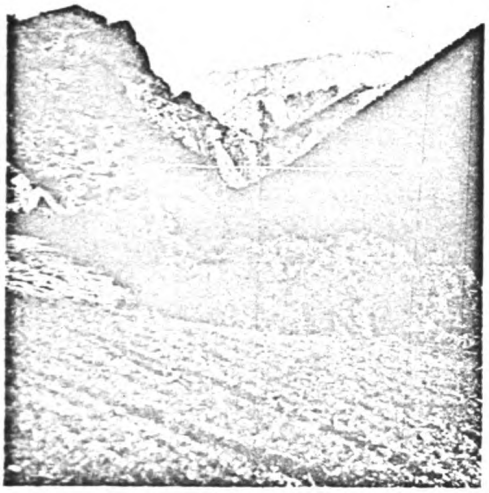
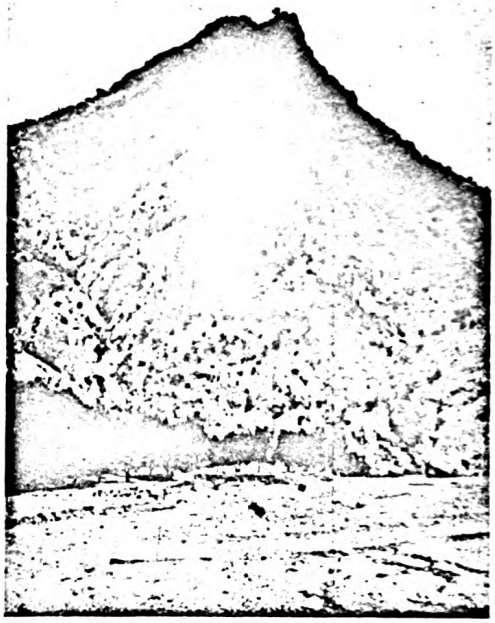
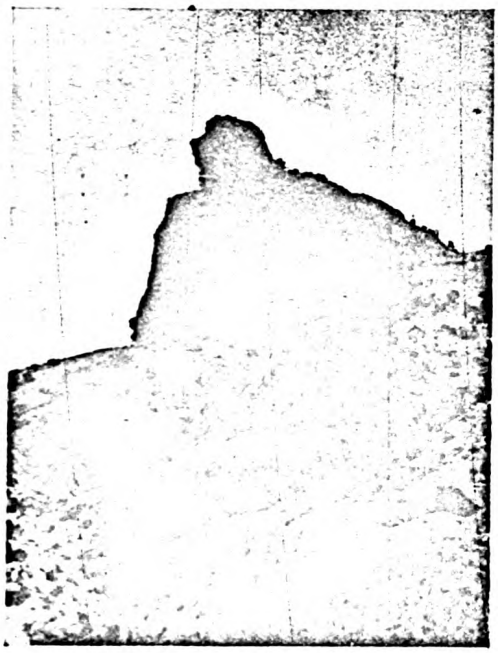
ENVIRONMENT 2



A terrace in the vale of Iherrushen, Gzennaya



The site of the Sunday Market at the confluence of the Bayu and the Tighza, Gzennaya



The Rock of the Ogress, Tiddest, Gzennaya

Olive trees growing at Sidi Misaud on the Beni Ulishk–Temsaman border

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ariyeri, the oleander. This plant is important in the manufacture of magical concoctions. Laoust [1] and Justinard [2] support this identification.

tuzzelt, a bush resembling a high-bush blueberry. It bears a red pod, like a rose-pod, which is eaten. Laoust [3] calls this *Fraximus dimorpha*.

aghanim, a reed, used extensively in basket making. Laoust supports this identification.[4]

tharugwith, a bush with a red flower, much frequented by bees.

zui, a bush bearing a white flower, with peppery-tasting leaves. The latter are used as medicine for stomach-ache.

r-knuafer, a bush or low tree which produces a bud resembling a clove. The buds are put into tea as a spice, and are used as a stomach-ache cure for children.

azir, a bush the leaves of which are used in the brewing of a tea alleged to be beneficial in fever.

izarshi, forsythia. Women cut pieces of its stem and tie them in their belts to prevent boils. This identification is purely personal and lacks confirmation.

thakhfa, a wild rose, the pods of which are sometimes eaten in times of famine. Hanoteau and Letourneau [5] give *Rosa sempervirens* for the Kabyle *thaafert*.

Luxurious forests of conifers are said by the inhabitants of the country to have once covered most of the region, but today they are confined to the mountains of Beni Bu Nsar, Taghzuth, Beni Khennus, Beni Seddath, Ktama, Zarket, and the upland reaches of Mtiwa. Patches of this forest remain on Mt. Kuin in Gzennaya, in parts of Beni Amart, at Aswil, where the Nekor passes from the Gzennaya into Beni Urriaghel, and on the crests of Beni Tuzin. The *taidha* grows chiefly in the Senhajan tribes, but the *thuya* is found not only there but also farther to the east, in Gzennaya and Beni Tuzin.

After climbing from the hot barrenness of the eastern Rif, one finds the forests of the Senhaja Sghir most beautiful and satisfying. On the mountain between Beni Bu Nsar and Taghzuth, it is difficult to realize that one is in Morocco. The whole of this section reminds one of temperate forests, such as are found in the northern United States and Canada; especially is this true in the long, flat plateau-valley of Beni Seddath, where a lush meadow is variegated with frequent clumps of *taidha*. Even in midsummer this region retains an exhilarating chilliness of atmosphere. (See plate 1.)

CLIMATE

The slopes of the Mediterranean border of this region are rugged, mostly deforested, hillsides, with a climate similar to northern Mexico or our own Southwest. Farther to the east, in the tribes of Beni Said, Beni Ulishk, Tafersit, and parts of Galiya, the country becomes rolling and its slope relatively gentle, and grain is grown on it without terracing or irrigation. Farther south, however, stretches the arid expanse of the Garet, that waterless waste whereon the Metalsa and Beni Yahyi shift about from camp to camp. This desert stretches into parts of Beni Said and Galiya, and oversteps the boundary of Beni Ulishk and Tafersit. Here in the Garet grows a sparse crop of grass, and quantities of that coarse grass called *halfa*, resembling our own marsh or beach grass, from which the nomadic peoples, and the Gzennaya and other Riffians as well, make sandals, pack-saddles, ropes, and all sorts

[1] Page 484. [2] Page 136. [3] Pages 493, 499.
[4] Page 483. [5] Page 48.

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of containers. Water is so scarce in the Garet that the Metalsa and Beni Bu Yahyi are accused by the other Riffians of giving their food-vessels to dogs to lick rather than washing them. (See plates 2 and 3.)

In the Garet during summertime the heat rises unmercifully, to such a temperature that it seems difficult to endure; in winter cold winds blow across it, and although the ground does not freeze and snow rarely falls, the inhabitants feel considerable discomfort in the flimsy shelter of their tents.

Winter snow falls regularly in Gzennaya, Beni Tuzin, Beni Urriaghel, Beni Amart, throughout the Senhaja Sghir, and in parts of the Ghomara, as well as in the Arabophone Senhaja. On Christmas day, 1926, several inches of snow fell at Ajdir, on the Bay of Alhucemas. In the valley of Beni Bu Nsar every winter the brook freezes over, and its course is obscured by several feet of snow, which smooths off the contours of the terraces; Taghzuth is almost as hard hit, and Beni Seddath and Beni Khennus are under snow for over four months of the year, while in Zarket the snowfall is so great that a whole column of Spanish troops perished in ten-foot drifts in November, 1926. The Spaniards occupying the posts in the Senhaja Sghir have organized a ski troop, composed of Riffians who, during the last two winters, have become adept in this new method of locomotion. (See plate 1.) Both the Riffians and the Senhajans seem perfectly acclimated to the snow, from a physical standpoint. They do not seem to mind the cold as much as do Europeans, and frequently walk for hours in the snow barefoot.

The Beni Bu Nsar, Beni Khennus, and Beni Seddath are as accustomed to snow as are we in New England, and endure a climate in no wise less rigorous.

FAUNA

As far as can be determined, no competent zoölogist has worked in the region discussed in this volume. Because of the inaccessibility of the country such a lacuna is not surprising. It is therefore with hesitation that one not versed in zoölogical classifications attempts to catalogue the animals found there. I have made a list of the mammals commonly known to the Riffians, with their Berber and Arabic names and their descriptions. By comparing these names with those given by Hanoteau and Letourneau for Kabylia and checking the descriptions with Dr. Glover Allen of the Zoölogy Department of Harvard University,[1] and by looking them up in Flower and Lydekker, I have arrived at tentative conclusions as to the identities of most of them. My guesses as to species should not be taken as premature and groundless identifications, but rather as suggestions intended to stimulate zoölogical interest in that area.

Mammalia

Ungulata

tighaidat u wazghar (Arabic *ghazal*), the gazelle. This animal is found in the flat arid regions west of the Muluya, in the tribes of Metalsa, Beni Bu Yahyi, Galiya, Kebdana, Beni Said, Beni Ulishk, and Beni Tuzin, and in southeastern Gzennaya.

Gazella mhorr and *G. dorcas* are common in Morocco, also *G. isabella*.

[1] Dr. Allen has kindly gone over this section in proof, making numerous additions and corrections.

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uthath, the aoudad. The Arabic word, here rendered in the French spelling, is derived from the Berber name and has been taken over into English. The aoudad is a mountain sheep of aberrant variety, the *Ovis tragelaphus*[1] (=*lervia*), which formerly was plentiful in the Rif but now is either extinct or nearly so. There are said to be individuals of this species surviving in Jebel Mulay Abd es Slam near Sheshawen. The aoudad, despite its classification, resembles superficially a goat rather than a sheep. Its horns, which are long, transversely grooved, and bent back, are still used as powder horns and as the ends of the *zammar*, a Riffian musical instrument.

afunes n jakhara, a species of wild cattle, smaller, more wiry, and more hairy than the domestic variety and with shorter horns. This creature survives in Jebel Bu Ma'awia, between Metalsa and Beni Bu Yahyi, and was frequently shot for food by the Riffian soldiers in the recent war.

Suidae

irif (Arabic *halluf el ghaba*), the wild boar, found everywhere in the region. It is the same species as the European wild boar, and extends all over North Africa. Species: *Sus scrofa*.[2]

Rodentia

Muridae

azharbo (Arabic *jarbu'a*), the jerboa, found everywhere in the region. *Jaculus jaculus* is the Algerian species.[3]

aghartha (Arabic *far el kheil*), some sort of woodmouse (probably *Apodemus sylvaticus hayi*) or wild mouse. Several species are probably included. Hanoteau and Letourneau even list one *far el kheil* as the polecat; they also find three insectivores and six murids bearing the same Arabic name.[3] The Kabyle word *thader'ar'ats*, which means both "polecat" and "dormouse," in Riffian means "mongoose." In view of such confusion one could hardly suggest a species for *aghartha*.

aghartha (Arabic *far*), the house-mouse. Riffians say that this is the same species as the preceding, the difference being entirely one of habitat. The Algerian species is *Mus musculus*,[4] the ordinary house-mouse or its ally, *Mus algirus*.[5]

Leporidae

ayarzith (Arabic *arneb*), the hare. The distribution is general. *Lepus kabylicus* is the species found in northern Algeria.[6]

akaniny (Arabic *koniya*), the rabbit. The distribution is general. *Oryctolagus cuniculus algirus* is the Algerian form.[7]

Hystricides

arrui (Arabic *dhurban*), the porcupine, found in Europe and North Africa, with spines often reaching a length of over a foot and a half. It inhabits caves throughout the region. Species: *Hystrix cristata*.[8]

[1] William H. Flower and Richard Lydekker, *Mammals Living and Extinct*, p. 356.
[2] *Ibid.*, p. 283; Hanoteau and Letourneau, p. 143.
[3] *Ibid.*, p. 144; Flower and Lydekker, p. 480.
[4] Hanoteau and Letourneau, pp. 143–144.
[5] Flower and Lydekker, p. 475.
[6] Hanoteau and Letourneau, p. 145; Flower and Lydekker, pp. 492–494.
[7] Hanoteau and Letourneau, p. 145.
[8] *Ibid.*, p. 144; Flower and Lydekker, p. 486.

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Insectivores

Erinaecidae

insi (Arabic ***ḳanfud***), the hedgehog, found throughout the region. This animal makes itself useful by killing snakes. It is said that formerly the Riffians ate the hedgehog, but that once a woman of the Beni Amart, going out reaping, left her two babies in a brush shelter which she had constructed at the edge of the field. When she returned to them she found a cobra arching up in front of them, and a little hedgehog spitting at the cobra and keeping it at bay. In recognition of this favor the Riffians refrain from killing the hedgehog. This tradition may be recent, since the episode is supposed to have happened less than a generation ago. The *insi* belongs to the genus Erinaceus; the exact species is doubtful since, according to Flower and Lydekker,[1] there are about twenty different ones. Hanoteau and Letourneau[2] identify the animal bearing the same name in Algeria as *Erinaceus* (=*Aethechinus*) *algirus*.

Carnivora

Viveridae

thawartha, a large mongoose greater in size than the *mush abaran*. It kills snakes, is variegated in color, and has bristly hair and a long tail. It is found throughout the region, except in the more arid portions to the east. Hanoteau and Letourneau do not mention this animal as existing in Kabylia. Dr. Allen suggests that it may be *Herpestes ichneumon*,[3] which was sacred to the Egyptians.

sibsib (Arabic *zerdi*), a small species of mongoose. Hanoteau and Letourneau[4] identify an animal of the same name as *Mangusta numidica*. Dr. Allen thinks that the *sibsib* may be a *Calogale*.

isgith may be the *Genetta africana* mentioned by Hanoteau and Letourneau,[4] or the *Genetta vulgaris* of Flower and Lydekker.[5]

Mustelidae

nims (Arabic *nims*), a weasel or polecat, found throughout the region where any forest or moisture remains. Hanoteau and Letourneau[6] call the *nims* of Kabylia a polecat, giving it the name *Putoris bocamela*. Yet the Berber name which they give it, *thader'ar'ats*, in Thamazighth means "mongoose," being another word for *thawartha*. Dr. Allen suggests that the *nims* may be *Mustela africana*.[7]

akazin w aman, or ***ar w aman*** (Arabic *kelb el ma*), the otter, found wherever there are streams and irrigation ditches. The animal causes constant annoyance by making holes in the ditches and uprooting gardens, as well as by stealing poultry. The animal of the same name and description in Kabylia is called by Hanoteau and Letourneau *Lutra vulgaris*.[6,7]

Felidae

bu haru, anciently ***izim*** (Arabic *seba*, *asad*), the lion. Lions, which were common in the Rif in the seventeenth century[8] and were killed at intervals up to forty years ago,[9] are now believed to be extinct or nearly so. It is popularly believed by the natives of Gzennaya

[1] Page 620.
[2] Page 144.
[3] Flower and Lydekker, pp. 535–536.
[4] Page 142.
[5] Page 528.
[6] Page 143.
[7] Flower and Lydekker, pp. 589–590.
[8] Sieur Roland Frejus, *Relation of a Voyage into Mauretania*, p. 26.
[9] Otto C. Artbauer, *Riffpiraten und Ihre Heimat*, p. 154.

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that an old lion still lives in the bushes around the tomb of Sidi Mhend, near the village of Bured. The lion was pursued into these bushes about forty years ago by a large party of beaters, and is said to have been seen about once a year ever since. There is only one species, *Felis leo*.[1]

aghires (Arabic *nimr*), called by Hanoteau and Letourneau[2] the panther or leopard. This animal has been extinct in northern Morocco, by popular account, for over a hundred years. It is believed that there is no female of the *aghires*, and that it is reproduced in the following mythical manner. A lioness bears seven cubs in her first litter, six in her second, five in her third, four in her fourth, three in her fifth, two in her sixth; and in the seventh year (for she bears but one litter a year) she produces a single creature, the *aghires*, which is stunted but wiry, and stronger than a true lion; after bearing it the lioness becomes barren. The fact that such a legend can be believed warrants the assumption that the *aghires* has been extinct for a considerable period. In Kabylia the animal called *aghilas* (French transliteration *ar'ilas*) has been identified by Hanoteau and Letourneau[2] as *Felis pardus*. As in Morocco, the Arabic name is *nimr* (*gh* and *r'* are but two ways of transliterating the seventeenth character in the Arabic alphabet, and in Riffian dialects the normal Berber *l* becomes an *r*).

mush abaran (Arabic *ḳatt el khala*), a type of lynx or wild cat found throughout the Rif, Senhaja, and Ghomara, where any forest is left. Hanoteau and Letourneau[2] give for the *mush berran* of Algeria the specific name *Felis catus*, the wild cat. Dr. Allen suggests that the Riffian *mush abaran* may be *Lynx caracal*. This latter species is found in Algeria but is called *ursel*.[3] The fact that *mush abaran* has tufted ears tends to favor Dr. Allen's suggestion.

Canidae

oshun (Arabic *ḍib*). The Arabs use this word for all species.

oshun awithair (Arabic *dib*). The Riffians recognize two species of dog-like animal, one at least of which is the true jackal. The *oshun*, the larger of the two, is different in appearance from the *oshun awithair*, which I have shot. Four of the former, which I saw in one evening, about dusk, looked as large as wolves — gray, and with straighter, more erect ears than the common jackal. At the time I thought them wolves, but later learned that the latter are not found in this part of North Africa.[3] Hanoteau and Letourneau[4] list but one species of jackal in Algeria, *Lupulus* (=*Canis*) *aureus*.

ohar (Arabic *tha'leb*), the fox. The Riffians distinguish but one species, but Hanoteau and Letourneau[4] find two in Algeria, *Vulpes atlanticus* and *Vulpes niloticus*.

Hyaenidae

ifis aghiul (Arabic *dheba'*), the striped hyaena, found everywhere in the region. It does not attack man. The species is *Hyaena hyaena*.[5]

ifis (Arabic *dheba'*). Here again the Arabs use one word for two species. This is the spotted hyaena, likewise found throughout the region. Neither Flower and Lydekker nor Hanoteau and Letourneau mention its presence in North Africa. The Riffians distinguish it from the *ifis aghiul* by its spotted markings, and by its habit of attacking man. Its

[1] Flower and Lydekker, p. 504.
[2] Flower and Lydekker, p. 548.
[3] Page 142.
[4] Page 141.
[5] Hanoteau and Letourneau, p. 142; Flower and Lydekker, pp. 541–543.

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method of attack, as described by the Riffians, is as follows. It stupefies men travelling at night with its odor, hypnotizes the victim with its laughter until he falls down laughing, and then devours him. Despite the lurid nature of this portrayal, the accurate description of the animal's coat and the mention of its dangerous character imply that its existence is real. One of this species was run over and killed by an automobile owned by the Kaid Midboh of Gzennaya near Aknoul in March, 1928. Species: *Hyaena crocuta*, said to range south of the Sahara.[1]

Primates

rḳird (Arabic *el ḳird*), the Barbary ape. It was formerly distributed throughout the region, but is now limited to the mountain of Taghzuth, to Mt. Meggu behind Sheshawen, and to the pass of Bab el Ḥait in the Senhajan tribe of Beni Wenjin. The species is *Macacus inuus* according to Flower and Lydekker[2] and to Ghirelli;[3] *Pithecus inuus* Geoffroy according to Hanoteau and Letourneau[4] or *Macaca sylvanus* as currently used.

rkaramud (Arabic *el karamud*), a species of Cercopithecus, now extinct, said to have existed up until a hundred years ago. It was smaller than *rḳird* and longer-tailed.

Chiroptera

thasrith ighathain (Arabic *ṭair el lil*), the bat. This animal lives chiefly in caves. Hanoteau and Letourneau[5] give two species for Kabylia, *Vespertilio murinus* and *Rhinolophus unihastatus*. Bats recorded by Thomas for Western Algeria are as follows: *Asellia tridens*, a leaf-nosed bat; *Plecotus christiei*, a long-eared bat; *Pipistrellus kuhle*, a small pipistrelle; *Myotis oxygnathus*, probably the brown bat called *v. murinus*.[6]

This list is not, of course, supposed to be complete. Among mammals unlisted are shrews and probably numerous species of wild mice.

Other Animals

It would be difficult to compile a list of the birds, and practically impossible, for other than a specialist, to enumerate the amphibia and reptiles, while the fishes are not well known to the Riffians themselves.

Mentioning but briefly a few of the birds, one might include a species of grouse or partridge, commonly hunted, and the wild pigeon. Varieties of hawks and eagles are abundant, and there is a strong tradition concerning a giant hawk-like bird, larger than a man and now extinct, which swooped down and carried off livestock and children. The last of these creatures, called *baran*, are supposed to have nested on the mountain beneath which took place the famous massacre of Spanish troops, at Dhar u Baran and Anual.

Among the reptiles one encounters species of land tortoise and several varieties of snakes, including such general Moroccan forms as the puff-adder, green python, cobra, and asp, all of which I have seen. Lizards abound and seem to represent numerous species, about one of which a curious legend has arisen. This creature is a small, laterally compressed

[1] Flower and Lydekker, pp. 541–543.
[2] Page 722.
[3] Angelo Ghirelli, *El Norte de Marruecos*, p. 47.
[4] Page 141.
[5] Page 143.
[6] Thomas, *Novitates Zoölgicae*, vol. xx, p. 586; for central Western Sahara, *ibid.*, p. 23.

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reptile, green in color. When annoyed it puffs itself with air and exhales slowly, making an unpleasant noise. It is supposed to give birth to snakes, just as the lion is held responsible for the parentage of the panther.

Besides the snakes whose existence is unquestionable, one fabulous species is frequently mentioned. This creature is said to have a blunted tail, upon which it rises; using the tail as a lever it hurls itself through the air a great distance in the direction of its victim. The Riffians believe this firmly.

Fish are seldom seen in the smaller streams which empty into the Mediterranean; they are too swift, and, along their lower courses, too seasonal. In the Muluya, of course, fish are plentiful. What few there are in the mountain streams are eaten more by otters than by men, since the Riffians are not fond of fresh-water fish, although they preserve no definite tabu against them.

In the streams which empty into the Wergha on the Atlantic side of the watershed fish are more common, and are netted and eaten in Taghzuth and Beni Bu Nsar. Sea fishing, which has a special place under "Material Culture," [1] is carried on along practically all the coast.

[1] See below, p. 38.

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CHAPTER II

TRADITIONS OF ORIGIN: GHOMARA, SENHAJA, AND RIF

BEFORE attempting to study the history, culture, and racial composition of a people it is frequently worth while to see what the people themselves have to say about these things. Native traditions concerning such matters may in places be hopelessly muddled and obscure, but in other places they may be surprisingly lucid and correct. At any rate, it is worth while to give them a trial to see how far they accord with the facts of history and of cultural and racial distribution.

There are three major Berber groups in the region which we are studying: the Ghomara the Senhaja, and the Rif. Each of them has a different story as to origin, but the stories are interrelated.

GHOMARA

The Ghomara claim that in the country which they now occupy there formerly lived a people resembling Suwasa, or men of the River Sus south of the Atlas. The Ghomarans are not positive that these people were Suwasa, but think it likely. At any rate, there came seven years of foul wind accompanied by mosquitoes, which killed off all the inhabitants. After this the Ghomara, who had wandered up from Segguia el Hamra, or Red Irrigation Ditch, a watercourse in what is now Rio de Oro south of the Draa, entered the country and settled in it. After they had been there a while the Portuguese came in and commenced to rule over them, but the Ghomara rose and expelled their masters. All these things took place in heathen times. After this two Riffians wandered in and established the families of Harthanen and Aduz, Harthanen's ancestor being from Beni Bu Frah, and Aduz's from Bokoya. The rest of the name-ancestors came from Segguia el Hamara. Here we have definite tradition of an invasion from the south, with a slight infiltration of Riffian ancestors afterward.

SENHAJA

In the Senhaja Sghir the legends are equally explicit. The various tribes are supposed to have been settled in the following ways and order. First were the Beni Bu Nsar. A certain heathen king sent a Christian prisoner in exile to the mountains of Beni Bu Nsar. This region was at the time uninhabited, and its forests were filled with wild animals. The soldiers of the king took him there with his wife and left them, thinking that they would die there. They had progeny and flourished, felling trees, building villages, and erecting terraces. Years later messengers were sent by the king to see whether or not the exiles had died and found a large village.

The ancestor of the Beni Bu Nsar had a brother who was sent or went to the region even higher up the mountain crest, and became the ancestor of the Beni Khennus. Of the same family are the Beni Seddath, who live in the same place as the Beni Khennus — that is, their villages are intermixed, and neither of them has a territory distinct from the other.

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Next Taghzuth was settled. Originally there had been only Suwasa in Taghzuth, and a castle belonging to them is said to remain. A superficial examination of the so-called ruins show them to resemble a natural group of stones rather than the work of man. Besides this "castle," there is a similar site which is said to have belonged to Rum, meaning Rome, or Christians in general. At any rate, the Suwasa who inhabited Taghzuth were heathen and died off before the ancestors of Taghzuth came in. The ancestors of the families or villages came from the following places.

Ulad Ikhalif	Sidi Ikhalif from the Beni Ukil (Arabs near Ujda); his tomb is at Aiun.	Ulad Abekar	Segguia el Hamra
		Ulad el Wartith ..	Segguia el Hamra
		Targamzith	Segguia el Hamra
el Kelaa	Beni Bu Yahyi	Teririn	Segguia el Hamra
Tezarin	Metalsa		

The next tribe to be settled was Beni Hamid, whose ancestors were heathen from the western tribe of Beni Hamid, lying near Ghazawa.

After this came the ancestor of the Beni Bu Shibet. He was a Christian, related to the ancestor of the Beni Bu Nsar, but his descendants have lived in close contact with the Beni Hamid and have intermarried and made alliances with them, so that they are to-day closer to the Beni Hamid than to the Beni Bu Nsar.

Next came the ancestors of the Zarket tribesmen and of the Beni Gmil, who are supposed to be related. Information as to the point of origin of their ancestors or ancestor I was unable to obtain.

Last of all came the ancestors of Ktama, from Segguia el Hamara. Ktama, the last place to be settled, is the least desirable territory in all the Senhaja Sghir, and the inhabitants are looked down upon as yokels by the rest of the Senhajans.

Here again, as in the case of the Ghomara, three factors appear: the original Suwasa, who are said to have disappeared, the ancestors from the Segguia el Hamara, and the infiltration of other ancestors. The disappearance of the Suwasa seems to be a convenient excuse for the disposal of unvaunted ancestors. If none of them were alive at the time the Ghomaran and Senhajan ancestors came, and the countries were both uninhabited, how did they know that the people, of whom they presumably found traces, had been Suwasa? Or how did they know the history of the seven bad years? Ask a Ghomaran or Senhajan greybeard these questions and he will look embarassed and change the conversation. The very look suggests his knowledge or suspicion that the natives were absorbed by the newcomers.

Far more important than the coming of the Senhaja and the Ghomara, in popular tradition and imagination, was the war between them. This conflict took place in pre-Islamic times, according to the descendants of the main participants, or in very early times, according to Riffians who will not admit that Islam has not always existed.

It seemed that the whole world joined in, every tribe of the Rif belonged to one side or the other, and now even inanimate objects are sometimes divided into Senhaja and Ghomara. I was asked in Taghzuth which side the Americans had been allied with.

The cataclysm is supposed to have originated as follows. The son of the ancestor of the Beni Bu Nsar found in his father's documents a paper establishing his rights to Imasinen, a village in the Galiya, which was at the time uninhabited. The Ghomara also claimed the land in question, and so the two disputants took their claims before the Great Council. (Tradition is hazy concerning the composition of this body.) The Great Council decided

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that the two rivals should start walking at once, and that he who arrived at Imasinen first should own the land. The Senhajan won, and when the Ghomaran arrived he became angry, whereupon the war commenced. On the way home the two rivals collected allies in all the Riffian tribes they passed, as follows:

Senhaja	*Ghomara*
Mazuza of Galiya	Beni Shisher of Galiya
Beni Sidel of Galiya	Beni Bu Yafer of Galiya
Metalsa	Beni Bu Ifrur of Galiya
Gzennaya	Beni Bu Yahyi
Beni Urriaghel	Beni Said
Beni Bu Frah	Beni Tuzin
Mestassa	Beni Ulishk
	Tafersit
	Beni Amart
	Bokoya
	Targuist
	Beni Itteft
	Mtiwa

The forces of the Ghomara, judging by names alone, should have outweighed those of the Senhaja. But Beni Urriaghel and Gzennaya have always far overshadowed the other tribes numerically and in military power, so that their presence on the Senhajan side is supposed to have turned the scale, especially since they had as allies all the tribes on the Wergha here called Arabophone Senhaja. The Senhaja won, and the Ghomara have remained huddled on their seacoast ever since. To this day bitterness remains between the peoples, although the allies of the two have long since been drawn into fresh feuds and new alignments.

One cultural difference between the Senhaja and Ghomara has led to an *ex post facto* explanation for the enmity. It is said that there are two kinds of men: those who when they eat together leave a little food in the bottom of the bowl through shame of taking the last bit, and likewise keep the *baraka* [1] of the food in the house; and those who gobble it all to the last morsel. Furthermore the first kind are hospitable, and the second not. The Black Sultan (a common figure in Moroccan folklore) decreed that those who have shame in this matter should be called Senhaja and those who have none Ghomara. To this day all the Senhaja leave food in the bowl, and the Ghomara leave none; the Senhaja are hospitable and the Ghomara cold to strangers.

In this seemingly simple story of the Senhaja and the Ghomara, recorded as it came from the lips of the old men of these peoples, we have an exceedingly lucid account of happenings that occurred at least a thousand years ago and probably considerably earlier. Certain factors in the tale have been crystallized and handed down as entities, whether or not they are strictly accurate. At any rate, both the Ghomara and the Senhaja invaded from the south, the Ghomara first. Each found traces of previous occupants, each absorbed a certain amount of Riffian blood, and each sought allies among the Riffians when they fought off their old grudges, which they may well have brought with them from the south.

[1] See p. 157.

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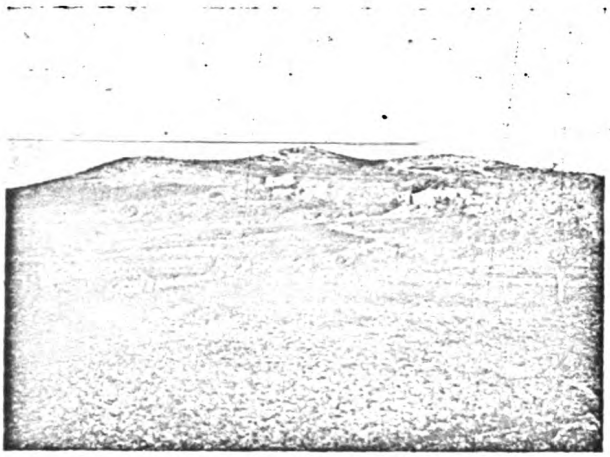
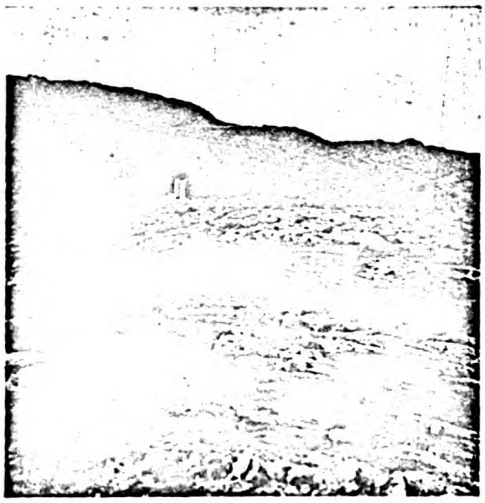
ENVIRONMENT 3

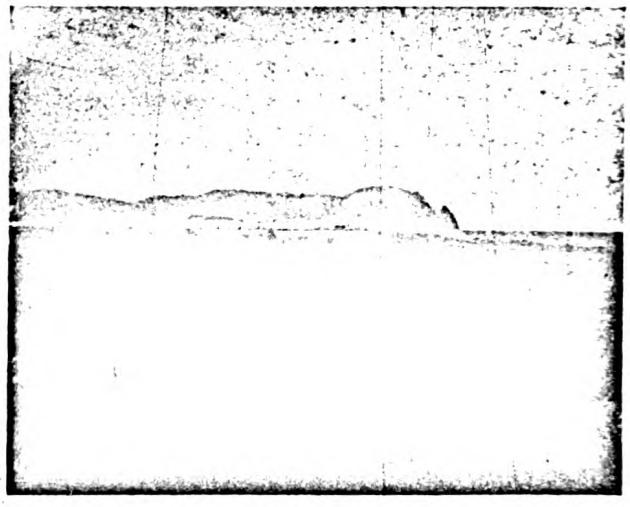


Relatively flat country,
Beni Said

The plain of Beni Ulishk, with the mountains of Beni Tuzin behind



The country back of Ajdir, on the Beni Urriaghel-Bokoya border



The alluvial plain at the mouths of the Nekor and Ghis, Beni Urriaghel

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RIF

In the Rif we have no such clarity of tradition, a fact which in itself indicates antiquity. The Riffian families claim various types of people as ancestors. Some state that their forebears were autochthonous heathen; others that their lines were founded by strangers coming in from the Senhaja; others that their eponymous ancestors were of Zenatan stock, having come in with the Zenatan invasion of the eastern Rif about six hundred years ago; and others, mostly located in the eastern tribes, that their ancestors were *igharbiyen* or westerners, hence foreigners. The following list will make this clearer.

Tribe	*Smaller Group*	*Traditional Ancestry*
Gzennaya	Ulad Abd el Mumen, Beni Tadmut, Ikaroen, Ulad Fars	Brothers from the east, through the Beni Bu Yahyi
	Beni Yunes	Recent entry from Beni Snus, a Zenatan tribe
	Tarosht	Agheir el Hamid, in the Eastern Arabophone Senhaja
	Ikhuanen	Khunduktamda, in the Eastern Arabophone Senhaja
	Jebarna	Branes, very recent entry
	Teliwin	Beni Abdullah of the Beni Urriaghel
	Telmest, Mukudem	Beni Amart
	Imsdurar, Khebaba, Beni Mohammed, Ulad Alu ben Aissa	Autochthonous heathen. The ancestors of Imsdurar were called Irumiyen, implying a profession of Christianity.
Beni Urriaghel	Aith Yusuf u Ali	One of the *sohaba* of Mohammed. This claim was not advanced until the accession of Abd el Krim to power, and may well be false. Formerly the Aith Yusuf u Ali were reckoned the descendants of heathen.
	Imrabten	Sidi Hamid el Kroni, an Arab saint, probably living at Nekor during the dynasty of Saleh
	Aith Ali, Aith Abdullah, Beni Bu Ayesh	Autochthonous heathen
Beni Amart	Buhut, Agheir n Vandu	Vandu, a local heathen
	Beni Msita	Senhaja
	In Amar u Said	Said, a recently arrived saint
	Ibuyibughen	Buyibugh, a famous heathen of old, who had many children. The Ibuyibughen are said to have formerly worn cowhide clothing in ignorance of cloth. Even to-day they are considered heathen and said to possess magical powers.
	Tazaroth, Ijaonen, Ashth er Hasein	Autochthonous heathen
Beni Tuzin	Asht Medjur, Thazimin, Thezera n Jakhatha, Ifaani, Taghzuth n Tassa, Bu Hfora, el Azib of Meidhar	Zenata
	Meidhar, Asht Reiri, Zawia Sidi Bu Jiddain, Taurirt n Wushun, Ijaonen	Igharbiyen
	Asht Taaban, Ibutuyen, Ibarthan, Asht Aziman, Teizera Imziren	Heathen

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Temsaman	Ait Daud	Zenata from Beni Tuzin
	Tizi Azza	Igharbiyen
	Sidi Bu Daud, Bu Thinar, Amzauru, Truguth, Sidi Shaib u Ftah	Heathen
	Oshannen	This group, as well as the family of the same name in Beni Said, is descended from the Ulad Alu Fars of the Gzennaya.
Beni Ulishk	Beni Tyeb	Zenata
	Sidi Misaud	Igharbiyen
	Anual, Dhar u Baran	Heathen
Tafersit	Tafersit town	Zenata
Beni Said		Data lacking, except for family of Oshannen
Galiya	Tisidelt, Beni Bu Ifrur, Beni Bu Yafer	Autochthonous heathen
	Ait Shisher, Mazuza, Iferkhanen	Christians
Kebdana	Entire tribe	First heathen, then Christian
Targuist	Entire tribe	Formerly there were heathen in Targuist who died out and were replaced by despised ironworkers coming from outside to found el Malimin, and by the Ikhemrijen shorfa and their families.
Bokoya	Sidi Mersh, Athuz, Izefzafen, Tafensa	Heathen
Beni Itteft, Beni Bu Frah, Beni Hadifa, Mestassa		Data incomplete, most families said to be heathen
Mtiwa of the Rif		Both heathen and Arab

From this compilation, incomplete as it is, one may see that Senhajan influence penetrated the tribes of Gzennaya and Beni Amart, to the extent of giving certain families in these tribes eponymous ancestors; and that the Zenatan infusion was mostly confined to the nomadic tribes, Beni Tuzin, Beni Ulishk, Tafersit, and to border groups of Temsaman and Gzennaya. The tribes both to east and west of those just mentioned were left comparatively free of Zenatan influence so far as ancestors were concerned. Other foreigners, the *igharbiyen*, followed the same path as the Zenata, but extended more to the east as well. The tribes in which the majority of ancestral name-givers were autochthonous seem to be concentrated in the central and coastal Rif: Gzennaya, Beni Amart, the western maritime tribes, Bokoya, Beni Urriaghel, Temsaman, Galiya, and Kebdana. Beni Said, a tribe from which we have little information, may in this respect form a link connecting Temsaman with Galiya. The tribes of Beni Bu Yahyi, Metalsa, Beni Tuzin, Beni Ulishk, and Tafersit are considered by the Riffians themselves to be of recent origin and are consequently called *ikharajien*, a *thamazighth* word of Arabic origin meaning "false promisers" or "newcomers."

Regarding those heathen reputed to have been the ancestors of most of the central Riffians and of some of those to the east, there are few traditions obtainable directly as such, although an intensive study of Riffian folklore would without doubt shed a great deal of light on this problem.

There is supposed to have been a people living in Wed Iherrushen of Gzennaya named Imdiwen, who made use of bronze tools, some of the remains of which have been picked up recently by the inhabitants of that valley and thrown away as worthless. The Imdiwen are

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said to have fought among themselves until few were left; then there came hunger, and later plague, so that what few weak ones were left from the ravages of warfare succumbed utterly to the natural forces which beset them. There is said to have been a heathen king named Azzi, whose fortress was perched on the pass of the Noisy Mountain (Taurirt n Dghujidh) who stretched a rope between two sharp crags on either side of the Nekor, saying that whoever would marry his daughter must first pass over this rope from crag to crag. Many tried and fell down hundreds of feet on the rocks to die, until one day a Jew climbed the easier of the mountains with a load of withes, and wove himself a basket around the rope, got in, and drew himself across. Azzi gave his daughter to the Jew. On another occasion Azzi ordered all the people in Tiddest to bring him bowls of kuskus, stating that if any bowl were cold by the time it reached the top of the mountain its bearer would have his head cut off. The people of Tiddest took counsel and finally decided to cover their bowls with vegetable marrow, which retains the heat a long while, and doing this they all brought their kuskus to Azzi piping hot. The king, thrusting his hand into the first bowl to feel it, burnt his hand.

Tradition does not state which came first, the bronze-age Imdiwen or the ordinary ancestral heathen — but at any rate the bronze-age tradition confines the presence of the former to a definite limited area, while the heathen ancestors were found everywhere else in the Rif. Of the ancestral heathen one is told most emphatically that they were autochthonous, despite the fact that some of them are reputed to have adopted Christianity.

Summary. Traditions from this area, then, show several things clearly: that there dwelt originally in the territory a native pagan group which became the ancestors of the Riffians, especially of those now occupying the central tribes; that subsequently two invasions came from the southwest, first the Ghomara and then the Senhaja; that these Ghomara and Senhaja displaced whatever people had originally been in their territories, and subsequently received a slight infusion of Riffian blood; that the Senhaja and Ghomara fought a great war together, in which each of the Riffian tribes allied itself with one side or the other; that the Senhaja won this war; that long afterwards Zenatan peoples from the southeast filtered in, giving rise to a mixed or alien population in the tribes of Beni Bu Yahyi, Metalsa, Beni Tuzin, Tafersit, and Beni Ulishk; and that in these same areas and also reaching farther to the east came an infusion of outsiders, called "westerners," who further reduced the purity of the ancestral stock in the eastern Rif.

The significance of these traditions will be manifest when the facts of history, cultural distribution, and racial distribution are dealt with.

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CHAPTER III

RECORDED HISTORY OF THE RIF

THE isolation and impregnability of the Rif, due to the ruggedness inherent in both its landscape and its people, while advantageous to the anthropologist in preserving to this day ancient racial strains and cultural complexes, impede and almost totally prevent the work of the historian. The history of the Rif, so far as we can glean it, is a succession of invasions for the most part thwarted, of streams of conquest and colonization which have often rushed by but seldom through.

PRE-ISLAMIC HISTORY

The earliest reference in written history which may possibly concern the Rif is an inscription in an Eighteenth Dynasty tomb [1] referring to an invasion of Egypt in that period by a group of Libyans called the Mashausha. These people, a part of or affiliated with the Rebu, had conquered the Tehennu, the only Libyans with whom the Egyptians had previously been familiar,[2] and had enlisted the Tehennu under their command to invade Egypt. The Mashausha were said to have been westerners, and blonds. This reference may have some distant connection with the name of the Mazuza, a part of the present tribe of Galiya, but it is equally possible that there was at that time more than one group bearing the name of Mazuza.

Later on Herodotus [3] mentions the Maxyes as occupying the territory to the west of Lake Moeris and being different culturally from the nomadic Libyans to the east. The name may have some connection with that which the Riffians give themselves today, Imazighen, but this would not designate them alone, since other Berber groups use the same term.

The Phoenicians are believed to have first established their trading posts along the North African coast as early as the twelfth century before Christ,[4] and are thought to have traded very early through the Pillars of Hercules and along the Atlantic coast of Morocco, founding colonies as they went.[5] Hanno the Carthaginian, several centuries after the first Phoenician contacts along this coast,[6] led an expedition of colonists to the coast extending from the region of Mogador down to and beyond the Draa,[7] and continued to some point south of the Senegal,[8] almost to the equator.

[1] Oric Bates, *The Eastern Libyans*, pp. 211 *sqq.*
[2] Gaston Maspero, *The Struggle of Nations*, p. 431.
[3] Vol. IV, p. 180.
[4] S. Gsell, *Histoire Ancienne de l'Afrique du Nord*, vol. I, p. 366.
[5] *Ibid.*, pp. 415, 507.
[6] It is impossible to date this exactly. See Gsell, pp. 510–519.
[7] *Ibid.*, p. 483; Vivien de St. Martin, *Le Nord de l'Afrique dans l'Antiquité*, p. 367; Raymond Roget (ed.), *Le Maroc chez les Auteurs Anciens*, p. 18; R. Bosworth Smith, *Carthage and the Carthaginians*, pp. 40–41; Budgett Meakin, *The Moorish Empire*, p. 4. Gsell thinks that Garicon Teichos, the first of the five colonies, was located at Mogador. Others differ, Meakin stating that it is impossible to locate them.
[8] Gsell, p. 507; Meakin, p. 544.

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The Classical geographers name several of the harbors and landmarks along the Riffian coast; but only one, Russaddir, the modern Melilla, appears to have been a city.[1] This Chenier [2] believed to have been founded by the Carthaginians. A few years ago Spanish engineers building a road outside the city uncovered several ancient graves, containing, in conjunction with badly decomposed skeletons, several pieces of wheel-made pottery, and gold and silver ornaments. Among the latter were two gold earrings of fine workmanship, realistically shaped in the form of doves. Phoenician writing on the pots gave the clue to the identity of these remains.[3]

At Ajdir there is a ruin, in the shape of a quadrangle, on the beach directly opposite the island of Alhucemas. This site, unexcavated and filled with sand, consists, on the surface, of several ancient rubble walls enclosing a square. In the walls are to be found potsherds, made on the wheel and well baked, totally different from the hand-made poorly fired modern product. With these potsherds there are also pieces of green-glazed tiling. (See plate 4.)

This ruin is called the "Jema'a el Mujahidin," or Mosque of the Holy Warriors. It is locally supposed to have been built by the first Mohammedan missionaries in the Rif. Whoever built it apparently used as wall-metal the remains of an earlier settlement with a highly developed ceramic culture. An investigation of this site and an archaeological survey of the whole Riffian littoral would be an interesting enterprise.

This stretch of coast was the least-known portion, in ancient times, of the whole Moroccan seaboard, if we may judge by the relative rarity of sites mentioned in the literature of that time. The same means of comparison indicates that it was the region least affected by Punic culture.

Hamilcar, when he invaded Spain in 237 B.C., took his army to Europe by sea, skirting the coast to the Pillars of Hercules, and then sailing across.[4] This may well have been the usual means of travel between Carthage and Spain employed by a maritime people. Movements of troops which may have occurred by land would probably have followed the Ṭrik eṣ-Sulṭan, the usual east-west artery through what are now Ujda, Guerçif, Taza, and Fez—the normal and topographically easiest route.

The Carthaginians drew their soldiery from all over North Africa and from parts of Europe as well.[5] It is not unlikely that some of the young men of what is now the Rif, finding themselves out of the hills on some errand, enlisted, just as many enlisted in the French forces during the World War, without compulsion. Soldiers coming home from Carthaginian wars may have brought with them new ideas, manners, and styles of living. More probably, however, they felt it expedient to drop new habits at the portals of their land. I have watched returned soldiers come home to the Rif; usually they shed, on the way, any new elements of dress with which they started, — garters, shoes, stockings, kerchiefs, fezzes, go one after the other, — and when the adventurer arrives at the place of his ancestors he is attired in practically the same costume which he wore upon leaving. He converses very seldom about his experiences, and tries to smother himself back again into the old ways.

This, at least, is the modern technique of the returning soldier in the central and more archaic regions of the Rif. He feels that he would not be tolerated if he suggested any change, and if he told tales of things the others did not understand he would be branded a

[1] Itinerary of Antoninus (Roget, p. 40); Ptolemy (Roget, p. 36); Meakin, p. 557.
[2] L. S. de Chenier, *Recherches Historiques sur les Maures*, p. 32.
[3] These objects are at present deposited in the City Hall at Melilla.
[4] Smith, p. 157.
[5] *Ibid.*, p. 39; see also his reference to Plutarch's *Timoleon*, p. 20.

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boaster and liar. Such is the conservatism of the Rif, the mental inertia which makes a man look with distrust and intolerance upon any action or device not known to and accepted by his grandfather. If the same conservatism held true in Classical times, the distant presence of Carthage, and later of Roman cities, cannot have affected the Riffian tribes as profoundly as it did other Berber peoples better known in antiquity.

After the fall of Carthage, the Romans concerned themselves with the subjugation of North Africa, and after the Jugurthan war took Tangier.[1] During this period they laid claim to all the territory between the Atlantic and the Red Sea,[2] without much real authority over the outlying parts of their dominions. Along the Moroccan coast they are said to have had no authority more than eight leagues from the coast,[3] which is probably an exaggeration; it is doubtful whether they had any except at strategic points such as Ceuta.

The lands wherewith we are concerned came under the designation of Mauretania Tingitania, and east of the Muluya the country was called Mauretania Caesarea.[4] The part of Tingitania which was actually settled and administered by the Romans consisted of a right triangle, with Volubulis, near the modern Zerhun, as its right angle. (See plate 4.) Ceuta and Salé formed the two acute angles.[5]

This province was considered administratively a part of Spain,[4] and was generally reached by sea or through Spain. The portion of Caesarea lying between the rivers Muluya and Tafna was believed to be a trackless desert inhabited by wild beasts,[6] and the Roman road going westward from Carthage ended at the city of Caesarea, where the traveler still desirous of proceeding westward was forced to put to sea, and could find no road nearer than Ceuta, the point of debarkation.[6]

This negative evidence, although it strongly indicates the relative inaccessibility of the Rif in Roman times, does not mean, of course, that no Roman ever set foot in it, but merely that not enough of them did so to win fame in Classical literature. As will be seen later, the Christian elements in Riffian religion, especially in the region of the Senhaja Sghir, tend to indicate some sort of contact with the Romans, although there is no record of any bishoprics having been established in any part of the territory in question. The episcopal lists later on in the time of the Vandals show only one bishop in Morocco, at the city of Opinon, on the distant Lixus.[7]

It is interesting that perhaps the only positive reference to the Riffians in this period shows them not only unsubjugated by Rome, but actually, in the time of Marcus Aurelius, attacking the Romans and carrying the war into Spain.[8]

In A.D. 429, what little claim the Romans had to the western Mauretania disappeared forever with the incoming of the Vandals.[9] Boniface, the governor of Roman Africa, invited them to share his domain and help him with his personal wars.[10] The army, which

[1] Chenier, p. 109.

[2] William S. Davis, *An Outline History of the Roman Empire*, p. 77; Procopius, *De Bello Vandalico*, bk. iii, chap. 1, ll. 12–13.

[3] Louis Marcus, *L'Histoire des Wandales*, p. 143. Wherever possible I have examined Marcus's sources, since he used Victor Cartensis, an eighteenth-century forgery. I have not used those statements of Marcus which are based on Victor Cartensis, except where other sources are quoted.

[4] Chenier, p. 112.

[5] Meakin, p. 13; de Saint Martin, p. 346.

[6] Marcus, p. 293 (from Itinerary of Antoninus); see Roget, p. 39.

[7] Marcus, p. 292 (from Optatus, Hist. Donatist., edition Dupin, Introduction, p. lxxxix).

[8] Meakin, p. 13 (from Spartian, Hadrian, xxii, p. 194).

[9] For date, see Meakin, p. 17.

[10] Procopius, bk. iii, chap. 3, l. 25.

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numbered between fifty and eighty thousand,[1] was commanded by Genseric, bastard son of the king Godigisclus.[2]

The route which this army took is not clearly known. Procopius says that "the Vandals crossed the strait at Gadira [Cadiz][3] and came into Libya," [4] adding no details concerning the route. Evidence has been offered to prove that Genseric transferred his army by sea as far as the site of the modern Algiers.[5]

Whether or not they traversed Morocco, one year after their departure from Cadiz [6] the Vandals were besieging Hippone,[7] the modern Bone,[8] far to the east of the Rif, and thence marched on Carthage, which they captured in 439.[9]

By 457 those Vandals who had not left Spain with Genseric had probably joined his forces.[10] Marjorien, representing Roman authority in Spain, marched in pursuit of them, but with little success.[11]

The Vandals themselves lived almost exclusively in the territory neighboring Carthage, and both the Vandals and the Romans considered Tingitania a barren area, suitable only to serve as a natural barrier of defence.[12] In 460 Genseric sent men back to burn and devastate the two Mauretanias, poisoning the wells and springs, so as to prevent further attack from Spain by land.[13]

Soon after the arrival of the Vandals in Africa, the native rulers took back the territory previously belonging to them west of the Tafna,[14] and it was only on such destructive expeditions as the two above named that the Vandals came near them at all.

One of the few ways in which the Vandals may have influenced the Riffians was by their periodic habit of exiling the Tunisian Catholics. During periods of special bitterness church officials were sent to live among the Moors, a punishment which was then considered the severest imaginable.[15] Tingitania is not mentioned among the destinations of these unfortunates. If any did go to northern Morocco, however, their advent may have given rise to the tradition-origins of the Beni Bu Nsar and other tribes of the Senhaja Sghir, whose phylonymic forebears may on the other hand have wandered in independently or have been sent by the Romans.

After the surrender of Gelimer, the last Vandal king, to the Byzantine forces,[16] he and most of the Vandals with him were removed from Africa.[17] Some, including the royal family, were taken to the capital to adorn a triumph,[17] while most of the men were forced into the eastern army of the Empire. Four hundred of the latter escaped and returned to Africa.[18] In 540 Solomon sent to Byzantium what few Vandals, including their women, remained in Africa.[19]

[1] *Ibid.* (ed. Dewing), vol. II, p. 189 n.
[2] *Ibid.*, bk. iii, chap. 3, l. 23.
[3] *Ibid.* (ed. Dewing), vol. II, p. 5 n.
[4] Bk. iii, chap. 3, l. 26 (Dewing's translation).
[5] B. Kidd, *A History of the Church to A.D. 461*, vol. III, p. 344.
[6] For date, see Marcus, p. 145.
[7] Procopius, bk. iii, chap. 3, ll. 31–34.
[8] *Ibid.* (ed. Dewing), vol. II, p. 33 n.
[9] Marcus, p. 156 (from Prosper, p. 195; Idatius, p. 23).
[10] *Ibid.*, p. 137 (a personal deduction).
[11] *Ibid.* (from Possidius).
[12] *Ibid.*, pp. 293–294 (from Itinerary of Antoninus).
[13] *Ibid.*, p. 266 (after Idatius, p. 27; Marius Aventimus, in *Chronico apud Duchesne, scriptores histor. francor. coaetarici*, vol. I, p. 210; Procopius; and Victor Cartensis). Procopius differs from the others in this, Victor having presumably copied Idatius and Marius.
[14] *Ibid.*, p. 293 (based on Procopius).
[15] *Ibid.*, p. 181 (from Victor Vitensis, I, 5, as well as Victor Cartensis).
[16] Procopius, bk. iv, chap. 7, l. 12
[17] *Ibid.*, bk. iv, chap. 9.
[18] *Ibid.*, bk. iv, chap. 14, ll. 17-19.
[19] *Ibid.*, bk. iv, chap. 19, l. 3.

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The disappearance of the Vandals from North Africa may thus be explained historically. There was probably a minimum of race-mixture between this people and the mountain Berber stock; the Berbers hated the Vandals heartily and the Vandals, softened by luxury and excesses out of all moral semblance to their ancestors, looked upon the life of the hardy mountain tribes with delicate horror. The emasculated invaders preferred slavery to a life among a people the hardships of whose manner of living they could not endure.[1] Procopius describes a light-skinned fair-haired people far to the west of the territory with which he was familiar, a people contemporary with the Vandals and incapable of historical derivation from them.[2] The popular theory of a Vandal origin of blondism in North Africa is historically unsupportable.

During the half century which remained between the expulsion of the Vandals from North Africa and the first onrush of Arab invasion, the Romans did not attempt to retake the Mauretanias. The Goths had crossed over and taken possession of Ceuta, as well, perhaps, as of ports along the Ghomaran coast.[3] As related in a previous chapter,[4] the Ghomara retain traditions of a temporary subjugation to a people whom they call Portuguese, and point out decrepit castles on promontories of the seacoast as evidence of their statements. These towers, again, might advantageously be made the object of archaeological research.

Don Julian, the lord of Ceuta, who invited the Arabs to invade Spain, was called the ruler of the Ghomara,[5] which he may well have been. The Goths, for whom little has been claimed, may have possessed more power along the Riffian shore line than the much-vaunted Vandals ever aspired to.

It is during this little-known period between the downfall of the Vandals and the entrance of the Arabs that a Jewish kingdom of the Rif has been postulated by certain Moroccan Jews anxious to exploit deeds traditionally attributed to their ancestors. The claim is that at this time there was a Jewish kingdom in the Rif with a Jacob Pariente as king. This Pariente is said to have warred on the constituted authorities in Spain.[6]

Michaux-Bellaire, who brought this claim to light and has thoroughly exposed most of its details, feels nevertheless that the period of history specified in the tradition may have been one of strong Jewish influence in the Rif.[6] Ritualistic action in a modern Riffian religious ceremony [7] and dramatic representations in the annual carnival [8] seem to support his idea.[9]

FIRST ARAB INVASIONS

In A.D. 648 the Arabs invaded North Africa.[10] This event marks a turning point not only in religion and in certain elements of culture but also in the extent of human knowledge, since the Arabs left far better records of historical events than any of the invaders who had

[1] *Ibid.*, bk. iv, chap. 6.
[2] *Ibid.*, bk. iv, chap. 8, l. 29.
[3] Ibn Khaldun, *Histoire des Berbères*, vol. i, pp. 212, 287; vol. ii, p. 135.
[4] Chapter I.
[5] Meakin, p. 26 and n. 1, referring to Ibn Khaldun, vol. i, pp. 212, 287, vol. ii, p. 135, and to En Naziri, vol. i, p. 31.
[6] Michaux-Bellaire, *Au Propos du Rif*, pp. 3–7.
[7] See below, p. 151.
[8] See below, pp. 152 *sqq.*
[9] Horovitz, *Marokko*, pp. 47, 48; Sidney Mendelssohn, *The Jews of Africa*, pp. 142–145. Both Horovitz and Mendelssohn feel that Jews may have been in this region since before the Babylonian captivity. Slouschz also (*Une Voyage des Etudes Juives en Afrique*, Memoirs Inst. Française, 1er Série, Tome 12², pp. 482, 507–508, 550–551, 555) finds pre-Talmudic practices employed by North African Jews, indicating that their ancestors left Palestine before the second destruction of the temple.
[10] Meakin, p. 21.

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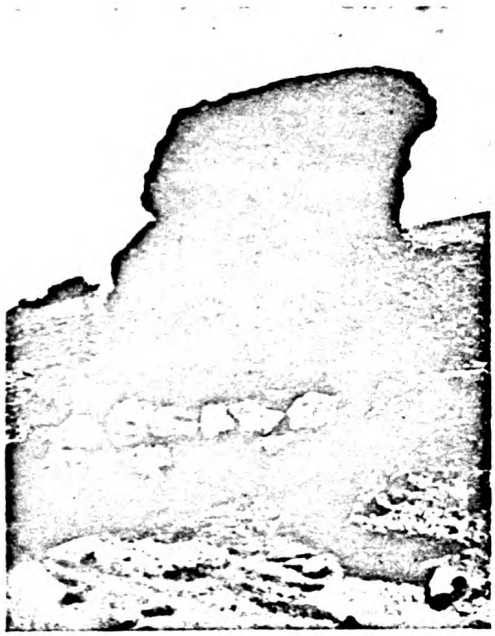
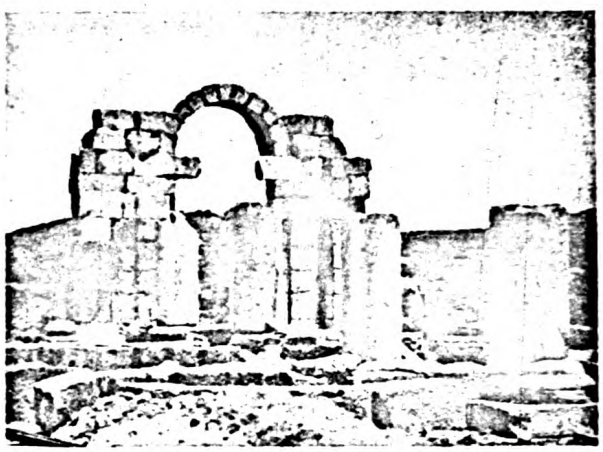
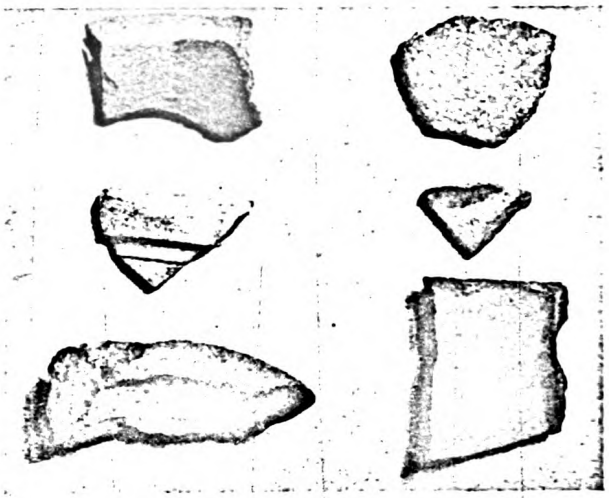


Remains of an ancient wall, Jama el Mujahidin, Ajdir, Beni Urriaghel

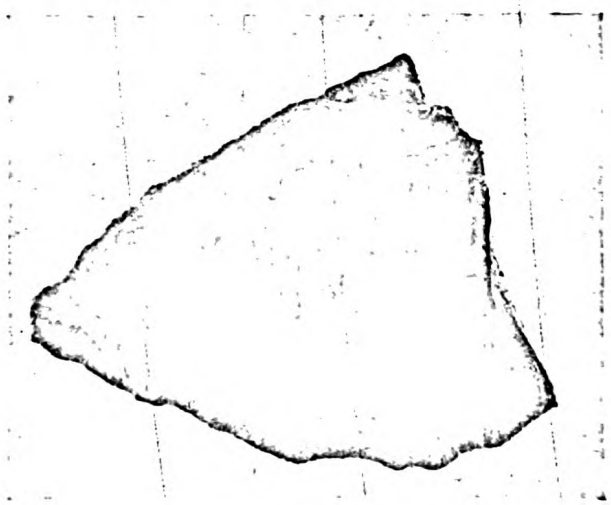


Roman remains, Volubilis



Potsherds from the wall at Ajdir

Wall of the Jama el Mujahidin, Ajdir



Green-glazed tile, Ajdir

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preceded them. In 688, under Okba, they reached the Atlantic,[1] and shortly afterward the invasion of Spain took place. These Arabs who came as the first Islamic invaders of Morocco were men of good family and of high culture. The Arabic which they spoke was of Classical type, and their standards of literacy and Koranic learning were high. It was this type of Arab culture, brought by the first wave of invaders (who were not Bedawin), that became the foundation of the high civilizations of Fez, Tetwan, and the cities of Andalusia.[2]

Explorers and missionaries rather than colonists, they travelled for the most part without women, and did not hesitate to marry into the families of the Berbers among whom they found themselves. Thus their offspring were as much Berber as Arab; and before many generations one may well imagine that the Berber blood dominated, although the Arab culture was maintained in the cities with little diminution.[2] Thus their descendants were less Arab in blood than the Bedawin who came after them, but more Arab than they in the sense that they were more deeply steeped in Islamic culture. The effect of this early group on the Berbers was not unfavorable. The Berbers took over Islam, but kept to their old language and to a great extent to their old manner of living, incorporating the new and the old into a firm blend which has in several areas survived until today, although in other parts of Morocco the advent of Bedawin [2] in later times has broken it up.

THE KINGDOM OF NEKOR

Such influences came to the Rif largely through the agency of one man and his descendants, and a study of the history of this family may be found useful when the time comes to attempt to unravel the cultural problems of the present-day Rif.

In narrating this history I can do no better than paraphrase the account given by el Bekri,[3] an historian writing in the eleventh century, since all subsequent accounts are based on his.[4]

Saleh ibn Mansur, a Himyarite, established himself in the central region of the Rif in the reign of the Khalifa el Welid ibn Abd el-Melek, about the year 710. He made his home at the port of Temsaman, near Bedkun, situated on the Wed el-Bakar. He converted to Islam the Berbers of the surrounding tribes, but these new converts, soon tiring of the restrictions imposed upon them by their new religion, renounced it and drove Saleh from the country. They then took as their chief one er-Rondi, a Berber of the tribe of Nefza, who had been in Spain, and who relapsed with them into heathenism. Tiring of him, however, they decided to reënter Islam, and called Saleh back to them. Saleh remained in the region until his death, and was buried at Agta, a village on the Temsaman coast.

Saleh married, among others, a Senhajan woman, and had by her two sons, el-Motasem and Idris. Abd es-Samed, his third son, was borne by another wife. El Motasem succeeded Saleh by popular acclaim, and, dying shortly after his accession, was succeeded by his nephew, Said ibn Idris.

This Said, the grandson of Saleh, built the city of Nekor five miles from the sea on the western bank of the River Nekor, on top of a hill which offered facilities for defence. This city became the capital of the kingdom of Nekor, which the descendants of the family were

[1] *Ibid.*, p. 23.
[2] Pages 183–196.
[3] E. F. Gautier, *Les Siècles Obscurs du Magreb*, pp. 385–389.
[4] Introduction, p. 5.

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destined to rule for three centuries more. An important market, which had been established nearby by Saleh, was moved to the town, and gave it promise of commercial prosperity.

In 858–859 Nekor was invaded by a piratical band of Normans, who sacked and destroyed the town, and after eight days departed, taking with them those of the inhabitants who had not fled. Among the prisoners were Ama t-er-Rahman and Khanula, two granddaughters of el Motasem ibn Saleh, who were ransomed and sent home by the Imam Mohammed ibn Abd er-Rahman, the fifth Omeiyad sovereign of Spain.

Said ibn Idris, in whose reign this misfortune occurred, did not die without further troubles. The Branes tribe of Berbers, perhaps the same Branes who today consider themselves part of the Senhaja, revolted, electing a certain Segguen as chief. Segguen won over other tribes, and the rebels attacked the city of Nekor itself; but at this juncture Said organized a sally and defeated them so badly that they entered into submission once more without further trouble.

When Said died he was succeeded by his son Saleh II, who no sooner than in power had to fight his brother Idris, who had stirred Gzennaya and Beni Urriaghel into revolt. The two armies met on Mt. Kuin, in Gzennaya, and Idris was completely victorious, except that Saleh escaped. Idris marched on to Nekor and demanded admittance as king. The officer whom Saleh had left in charge defended the place vigorously and refused to let Idris in until he should bring proof that Saleh was dead. During the night Saleh entered by stealth, and in the morning the governor let Idris in, saying that he was now sure of Saleh's death. No sooner had Idris entered, however, than he was seized and locked up in the palace. Saleh was unwilling to put him to death, but at length acceded to the entreaties of his ally, Kaṣem the Lord of Za, and had him killed by a page, since no one else was willing to do it.

Saleh's next difficulty was with the Meknassa, perhaps the ancestors of the inhabitants of the villages of Meknassa Fokania, and Meknassa Takhtania, today situated directly south of the Gzennaya. The Meknassa having refused to pay taxes, Saleh had let loose in their country an ass bearing a letter in the feed bag on its back. The Meknassa found the letter and read it, discovering it to be full of threats. Fearing Saleh's punishment, they put the amount of overdue taxes on the ass's back, along with a load of fine cloth from Merv, and led the ass back to Saleh, who forgave them.

When Saleh died his son Said II succeeded to the kingdom and to the troubles which usually beset its rulers. Hardly had he taken up office when the slaves of his family, led by his brother Obeid Allah and his uncle Abu Ali er-Rida, revolted and attacked him in his palace. With the help of his wives and attendants he drove them out, and later put down the rebellion, killing all the leaders but his brother and uncle, whom he imprisoned, later sending Obeid Allah to Ṃekka for life.

Among those he killed was his cousin el Aghleb, whereupon another cousin, a certain Sedeat-Allah ibn Harun, became angry and in return started a revolt among the Beni Isliten of Temsaman, without Said's knowing of his participation. When Said heard of the revolt, he set out with Sedeat-Allah to crush it, but Sedeat Allah betrayed him, going over to the rebels with all his men. Said fled to Nekor and was besieged there. Finally, however, Said won, and Sedeat-Allah remained in hiding in Temsaman. Said killed Sedeat-Allah's brother and burned his houses, in true Riffian style, and later pardoned Sedeat-Allah and let him return to court. Sedeat-Allah then entered the country of the Botouia and Beni

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Urtedi. From these peoples he obtained possession of the Garet fortress of Kolwé-Jara, whence he made raids on the territory of the Marnissa and Zenata. Later he came back to Nekor and remained as a faithful retainer of Said. During this time the sister of Said married a sherif of lengthy pedigree, who came to live in the country and established his progeny there.

Up to this time, and indeed throughout the reign of their dynasty, the family of Saleh had been orthodox Mohammedans of the old school, following literally the precepts of the Malekite rite. Through this adherence to orthodoxy they had remained in the good graces of the Omeiyad khalifas of Spain, one of whom, as has been related, ransomed the princesses of Nekor after the disastrous raid by the Normans in the time of the first Said.

Although their orthodoxy kept the kings of Nekor in the good graces of Spain, it aroused against them the ire of the heretical Fatemid khalifas of Kairwan. Obeid Allah esh-Shiai, the khalifa, sent Said a poem in which he threatened to destroy his kingdom if he should not submit to Fatemid doctrine and power. Said called in an able poet, who wrote a pungent reply which offended the khalifa so much that he sent out Messala ibn Habbus, the governor of Tehert, to invade the domain of Nekor and attack Said. In 917 Messala advanced on Nekor and took up his position at a place called Nesaft, a day's march from Nekor.

Said marched out against him and fought three days without being defeated. Then Hamd ibn el Ayesh, a valiant Riffian in his forces, a native of the tribe of Ituweft, which may have been the same as the present Beni Itteft, attempted to break through the enemy's lines and assassinate Messala. His plan failed, and he was taken prisoner. When Messala was about to kill him, he offered to support Messala in return for his life, and led the Fatemid army through a weak side of Said's line, whereupon Said's troops fled. Said sent his family out to the Isle of Alhucemas, and with a few of his retainers fought until he was killed. Nekor was sacked, and the women and children taken prisoners. Said's head, and the heads of those of his family who had been killed, were taken to the Fatemid khalifa's court and exhibited.

His children and the other members of his family who had escaped went to Spain, where they were well received by the Omeiyad sovereign Abd er-Rahman en-Naṣr, who provided them with what they required and let them remain in Malaga, awaiting an opportunity to return home.

Messala spent six months overrunning the territory of Nekor and then he departed, leaving one of his officers named Delul in charge. Before long the Fatemid soldiers stationed with Delul began to leave, until soon he had but a small group at his command. Said's three sons, Idris, el Motasem, and Saleh, heard this and prepared to return. Each set sail at the same time in a different boat, with the agreement that whoever should land first would be king. Saleh, the youngest one, landed first, on the roadstead of Temsaman and was acclaimed king. His brothers when they landed acknowledged him without controversy. He marched on Delul, captured him and his men, and crucified them all along the banks of the Nekor. Abd er-Rahman ibn Mohammed of Cordova sent Saleh gifts of jewels, clothing, and arms, and had the news of the victory announced throughout Spain.

Saleh III died after a twenty years' reign and was succeeded by his grandson el-Mowayed, who was attacked by Musa ibn Abu 'l Afiya and was killed. In 929–930 Nekor was again destroyed, and this time permanently.

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Later Abu Ayub Ismail, the great-grandson of the first Said through another line, took over the command and rebuilt Nekor, establishing in it a new population, and restoring the market-day. In 935 Sandal, the Negro leader of the Fatemid forces, seeking another force which under Meisur, another Negro, had been lost, approached Nekor and wrote to Ismail demanding his submission. Ismail shut himself up in the castle of Agri and wrote Sandal that he was willing to submit. Sandal sent messengers asking Ismail to come to his camp, but when he learned that Ismail had put these messengers to death he advanced and occupied the fortress of Naseft, the place in which Messala had killed Said ibn Saleh. After eight days of fighting Sandal took Agri, killing Ismail and most of those with him.

Sandal set up a Ketaman Berber named Mermazu as governor of Nekor, and departed for Fez, which city he had heard that Meisur, whom he had originally set out to find, was besieging.

The inhabitants of Nekor then returned, having chosen a member of the family of Saleh as their ruler. He was Musa ibn er-Rumi, who had previously lived among the Beni Isliten of Temsaman. Musa ibn er-Rumi took back Nekor, killed Mermazu, and sent his head to the emir of Cordova.

Two years after the coming of Sandal, Musa ibn er-Rumi was expelled from Nekor by another member of the royal family, Abd es-Semia, and went, with his brother and other relations, to Spain, where members of the family, survivors from previous expulsions, were already living in Pechina. His cousin Jorthem ibn Ahmed at the same time went to Malaga. In 947–948 Jorthem was recalled to Nekor as king, and retained his office until 971. The rule passed successively to several of his descendants, until in 1019–20 the Azdaja conquered them and forced them to reëmbark to Malaga. After the Azdaja had left, the descendants of Jorthem returned to Nekor, or rather to el Mezemma, its seaport. Later Yala ibn Fotuh the Azdaji drove from the country all the members of this family. In the year in which el Bekri wrote, A.D. 1067–68, Nekor still belonged to the descendants of Yala ibn Fotuh.

This is all that we know of the history of the kingdom of Nekor. Ibn Khaldun, writing several centuries later, merely copied el Bekri,[1] and did not state what events occurred there after the year in which el Bekri wrote.[2]

About six hundred years later a Frenchman, Sieur Roland Frejus, landed at Alhucemas and crossed the Rif by way of the River Nekor, Beni Tuzin, Tafersit, and the Garet. He afterwards returned to Alhucemas and spent some time there.[3] Frejus says that a certain Sheikh Amar commanded part of the Boutoya, the rest of which region, as well as Temsaman, was under the suzerainty of Sheikh Arras of "Albouzema," his brother-in-law and enemy.[4] Sheikh Arras lived in "Albouzema," otherwise known as El Mezemma, the port of Nekor, situated on the beach somewhat to the eastward of the present Ajdir.[5] On his ride into the interior Frejus stopped at Nekor, three leagues from the sea,[6] but does not say whether it was then a flourishing town or a ruin, as it is today. At any rate, El Mezemma must have been more important than Nekor, for when the Filali Sultan Mulay er-Rashid punished Sheikh Arras, his father-in-law, for not assisting him personally in the siege of Fez, he destroyed el Mezemma,[7] but no mention is made of his destroying Nekor, which must therefore have been already demolished, since no one in history had ever before passed by an opportunity to knock it down.

[1] Vol. II, p. 137, n. 4. [2] *Ibid.*, p. 143. [3] Frejus (itinerary abstracted from entire book).
[4] Pages 2, 16. [5] Pages 22–23. [6] Page 22. [7] Page 7.

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This event took place in 1666;[1] therefore the most that we know concerning the final abandonment of Nekor is that it occurred probably between 1068 and 1666.

The extent of the territory included in the kingdom of Nekor and the names of the tribes which bounded it are clearly stated in el Bekri. On the east he places the country of the Zuagha, about five days' journey from Nekor and neighboring the Jerawa of el Hasan ibn Abi 'l Aish. Near by are the Matmata, people of Kebdana, the Marnissa of the White Hill, the Ghassaṣa, who inhabit Mt. Herek, and the Beni Urtedi of Kolwé Jara. On the west the territory of Nekor extended to the country of the Beni Merwan, a people who made up part of the Ghomara, and touched on another Ghomaran tribe, the Beni Homeid, famous for its horses, and also on the Mestassa and the Senhaja. Behind these peoples he placed the Aureba and the Band of Ferhun, the Beni Ulid, the Zenata of Taberida, the Beni Irnian, and the Beni Merasen of the band of Kasem lord of Za and of the "hill called Taurirt."[2] The list of these outlying peoples, as well as those on the borders of the kingdom, includes many known today.

The Zuagha are now considered purely Algerian, but may in the days of Nekor have reached as far west as the Muluya. The Kebdana, of course, are still in their place; the Marnissa are now farther west than their order in the list would indicate; the Ghassaṣa were probably a group of what are now called the Galiya, and the Beni Urtedi, nomadic Berbers, in the Garet. Kolwé Jara, their stronghold, is said to have been one day's journey beyond the River Kert, and a day's journey likewise from the Muluya.[3] Therefore Kolwé Jara can be roughly located by finding a place where the two rivers are two days' march apart, and locating the middle of that distance. A line from the Kert to the Muluya, passing through the wells of Hassi Wensga, in the Beni Bu Yahyi, constitutes a two days' march, and Hassi Wensga is exactly one day's march from either river. At Hassi Wensga there are said to be the ruins of an ancient fortress. The wells of Hassi Wensga furnish the only water for many miles around in the arid waste in which it is located; a castle in that place would have the advantage over its besiegers through its control of the water supply.

El Bekri places the Ghomara to the west of, but not under the sway of, the kingdom of Nekor. Mestassa likewise was on the border, and the Senhaja lay to the west of it. Today the Senhajan tribe of Beni Gmil touches the tribe of Mestassa, thus presenting an unbroken line of Senhaja and Mestassa from the Wergha country to the Mediterranean. If, then, the Ghomara bordered on the kingdom of Nekor,[3] there must have been a gap between the Senhaja and Mestassa; but el Bekri may not have meant it literally, since it is really but a short distance from the junction of the Beni Gmil and Mestassa to the Ghomara.

Of the tribes said to be beyond the border tribes, the Beni Ulid, today forming part of the Senhaja of the Wergha, are still to be reckoned with. We know little of the Aureba, a name usually associated with Algeria, or of the Band of Ferhun, although in the Werghan tribe of Beni Wenjin today is a mountain cave of great size known as the *ifri n Ferhun*, or cave of Ferhun. Neither Beni Irnian nor Beni Merasen are names familiar today, although Za is now the name of a village of Beni Zerwal of the Jebala and the "hill called Taurirt" might be any hill, since in Berber *taurirt* means hill. The most important place today called Taurirt is the French fortress and wireless station on the road from Guercif to Ujda, and this may also be the hill mentioned in Sallust's *Jugurtha*.[4] If Kasem, lord of Za, held sway

[1] Date on Frejus's title-page.
[2] *Ibid.*, p. 97.
[3] El Bekri, pp. 180–181.
[4] Gordon's translation, p. 253.

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all the way from Taurirt beyond the Muluya to Beni Zerwal, he must have been a potentate indeed. As a matter of fact, his influence on the court of Nekor was great enough to persuade the second Saleh to put to death his brother Idris. The Zenata are listed as occupying the territory to the south of the Garet.[1]

The tribes which I have so far mentioned were border tribes of the kingdom of Nekor, and tribes beyond the borders. The tribes which figure most prominently as subject to the kings were Temsaman, Beni Urriaghel, and Gzennaya. Meknassa, Branes, and Beni Itteft have likewise been mentioned as tributary.

El Bekri lists as the harbors dependent upon Nekor, Muluya, Herek, Garet, Marsa 'd Dar Auktis, Wed el Bakar, and el Mezemma. Muluya was apparently at the mouth of that river; Herek, bearing the same name as a mountain before mentioned, was apparently somewhere along the shoreline of the Galiya; Garet was no doubt at the mouth of the Kert; Marsa 'd Dar Auktis, according to el Bekri, was near the Mountain of Temsaman; Wed el Bakar, now Marsa Sidi Hasein, was at the mouth of the river bearing that name; and el Mezemma, the actual port of Nekor, was on the Bay of Alhucemas.[1] It is interesting that in this early account the important harbor and city of Melilla is not mentioned, wherefore one must conclude its Islamic settlement to have been of later date; Carthaginians and Romans may well have occupied it earlier.

Three other ports are mentioned, but not as belonging to Nekor. These were Bades, Bakuia, and Balish, the last-named belonging to the Senhaja.[2] Today Bokoya is a tribe and Bades a ruin, nor have the Senhaja any outlet upon the sea.

El Bekri has mapped out a Rif not radically different in tribal designations from what it is today, the chief difference being in the eastern and Garet section. Beni Tuzin, Tafersit, and Beni Ulishk had not yet taken on their present appellations; Melilla had not been built, nor were the Galiya known as such; Beni Said was called Butuia, a term sometimes expanded to include a much larger region than that of the present Beni Said, and the nomads of the Garet, dominated then by Kolwé Jara, had not adopted their modern names. The Senhaja and Ghomara to the west seem to have occupied much the same territory they hold today, although the tribes now lumped together as Senhaja el Ghuddu, Werghan Senhaja, or, in this volume, Western Arabophone Senhaja, are not designated as Senhajan in origin or affiliation.

The civilization of Nekor seems to have been a counterpart of that of Omeiyad Spain rather than of anything in the Moghreb. The reigning sovereigns were learned in the Malekite rite and led the prayer publicly in the mosque of the city.[3] Koranic learning must have been highly developed and its influence on the three nuclear tribes of Gzennaya, Beni Urriaghel, and Temsaman strong. Said ibn Saleh built on the banks of the Ghis a mosque rivalling that of Alexandria, and today, on the same site or nearby, stands the sanctuary of Sidi Yussuf, in which before the Riffian war three hundred or more students applied themselves to the Koran and magical lore.

Although the descendants of Saleh carried on the traditions of their ancestor in religious and intellectual matters, they could not have avoided becoming more and more Riffian in blood and in general manner of life, for there is but one record of a fresh infusion of Arab blood into a line which was half Berber to begin with, and the contacts with the rest of the

[1] El Bekri, p. 181.
[2] *Ibid.*, p. 182.
[3] *Ibid.*, pp. 193–194.

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Arab world were few and, except those with Spain, bloody and unsought. We see them quarrelling among themselves and facing constant uprisings; we see the facile shiftings of loyalties and alliances, the high premium placed upon strategy and trickery, the practice of burning the houses of foemen defeated or driven off in a feud. These habits are distinctly Riffian in character.

OTHER EARLY CENTERS

Nekor, although the chief source of Arab influence on the Rif during this early period, was by no means the only such city in the Rif. Bades,[1] the ruins of which now confront the Peñon de Velez, and Melilla [2] were important in their time, and there were a number of smaller towns along the coast.

Unlike Nekor, Bades antedated the Moslem invasions, having been built, as Marmol suggests,[3] by the Goths. Bades was a city of some seven hundred houses, occupied by fishermen and shipbuilders. The lord of Velez (Bades) kept a navy of thirty galleys, wherewith to resist attack and to raid the coast of Spain. He likewise held sway over the mountain Berbers behind the town, who came down to defend it in time of need. Marmol cites many battles between the men of Bades and the Spaniards, and Spanish raids on the stronghold itself.[3]

In 1508 Bades fell to the Spaniards, and in 1522 the Turks took it away from them, keeping it until 1564, when the Spaniards seem to have regained control of it.[4] The Spaniards did not occupy the city, which fell into ruins at some subsequent date. During recent times the Spanish government has maintained a prison camp and trading post on Peñon de Velez, a small stony island just off the site of Bades, and this post has been one of the three prime gates of entry for articles of European manufacture into the Rif, the others being the Isle of Alhucemas and Melilla.

The nature of Bades' population is left somewhat in doubt, although from Marmol's description of it one would judge it to have been Berber, excepting for a *mellah* containing one hundred houses of Jews, which he does not fail to mention.[3] Even the identity of the Lord of Valez is left in doubt. Bades may well have exerted an Arabizing influence on the surrounding tribes through its extensive trading contacts with the outside world.

Melilla was the last of the three great centres from which trade influences may have been diffused. It is a very old city, having, as we have seen,[5] probably been built by the Phoenicians. It was occupied by a family called Beni Urtedi, who although the nominal inhabitants of the place were not always in command.[6] In 926–927 Abd er Rahman, the Omeyyad ruler of Spain, captured it, and fortified it to serve as a stronghold for his ally Musa ibn Abi 'l Afia.[7] A century and a half later, however, the original Beni Urtedi seem to have come back into control of their own city, for at that time they invited Mohammed ibn Idris, a member of the Idrisite family, to come over from Spain and be their ruler, which he did.[8] After many serious battles the Spaniards finally captured Melilla in 1497, and have kept it ever since.[9]

[1] El Bekri, p. 151.
[2] Chap. 62.
[3] See below, p. 23.
[4] *Ibid.*, p. 178.
[5] Meakin, p. 111.
[6] El Bekri, p. 258.
[7] *Ibid.*, pp. 178–179; Leo Africanus, *Description de l'Afrique*, vol. II, p. 311.
[8] Meakin, p. 110; Marmol, chap. 92.

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Two smaller cities near Melilla, Cacaca [1] and Tezota,[2] were dependent upon her, and seem to correspond more or less in position to the modern Selwan and Nador, although Tezota, having been built upon rock and having served as a natural fortress, can hardly be the same as Nador, which is built on flat ground. To both these cities as well as to Melilla came Venetian galleys, thus exposing this region to an additional source of trade influence.[1]

Tezota was destroyed by the second Merinid king of Fez, Yusuf ben Yakub, and was not rebuilt until the capture of Melilla by the Spaniards. It then became the refuge of Moors exiled from Granada.[2]

There were other cities in the region, but they seem to have been relatively unimportant and to have had little opportunity of influencing the local population, either in blood or in culture. The region around Melilla was submitted to the kingdom of Fez at the time when these events took place,[3] and so could hardly have escaped Arab influence in culture and perhaps in race.

Nekor, as we have seen, was the greatest centre in the Rif of the higher and earlier Arabic culture; Bades, although not necessarily of Arab foundation or inspiration, possessed an opportunity of bringing in outside factors, as, in a minor degree, did other smaller ports along the coast; Melilla, and to lesser extent Cacaca and Tezota, may have been instrumental in introducing both Zenatan and Arab influences (though not necessarily the same sort of Arab influence as at Nekor) to the eastern region.

ARRIVAL OF THE BEDAWIN

There were two other great events, besides the establishment of Nekor and the activities of Bades and Melilla, which brought external cultures and peoples into contact with the Rif. These were the second Arab invasion of the Moghreb and the northward push of the Zenata under the Beni Merin.

This second wave of Arabs entered Morocco in the eleventh century.[3] It numbered, according to the historians, between 150,000 and 200,000 persons,[4] including women and children,[5] whom, unlike the earlier invaders, they had not neglected to bring with them. The families included in this great migration were Beni Hashem, Beni Ma'awia ben Bakr, Beni Hillal ben Amr ben Ṣaṣa, and Beni Soleim ben Mansur.[6] These various groups are generally united, for the sake of simplicity if not of accuracy, under the name of Beni Hillal. The invaders were nomadic Bedawin,[7] profoundly different from the aristocratic adventurers who three centuries before had conquered the country under the leadership of Okba. They were not there to propagate religion or to erect universities; their task was to find new pasturage for their flocks and new camping grounds; in short, they were immigrants numerous enough and primitive enough seriously to compete with the plains-dwelling Berbers for their land. Being Bedawin, they were ill-adapted to dislodging or even greatly influencing the Berbers of the mountains, who led by necessity a type of existence utterly opposed to

[1] Marmol, chap. 92.
[2] *Ibid.*, chap. 93.
[3] Ibn Khaldun, vol. I, Introduction, pp. xxix, 28–51.
[4] Meakin, p. 32 (from Mercier, *Etablissement des Arabes*, p. 143).
[5] Gautier, p. 387 (from Ibn Khaldun, vol. III, p. 433).
[6] Meakin, p. 32 (from en Naṣiri, vol. II, p. 77).
[7] Ibn Khaldun, vol. I, pp. 28–29; Gautier, pp. 385–389.

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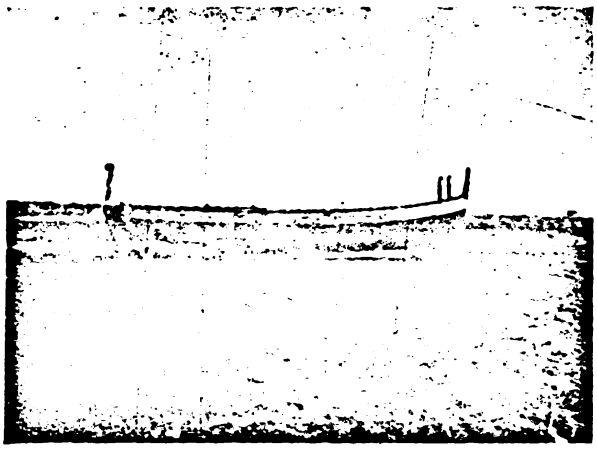
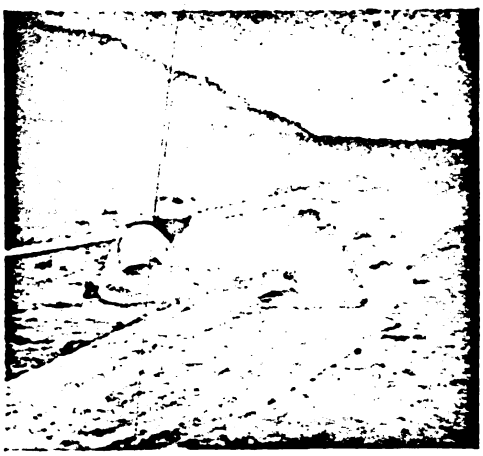
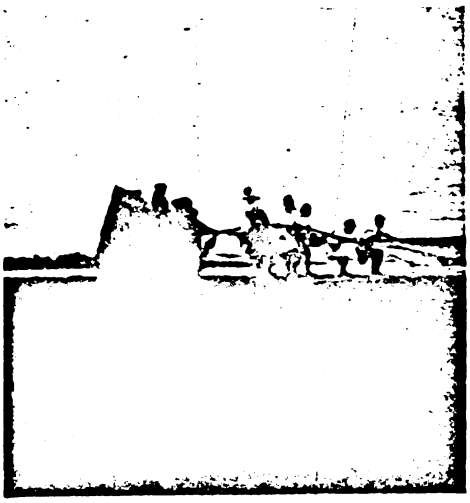
NAVIGATION AND FISHING 1



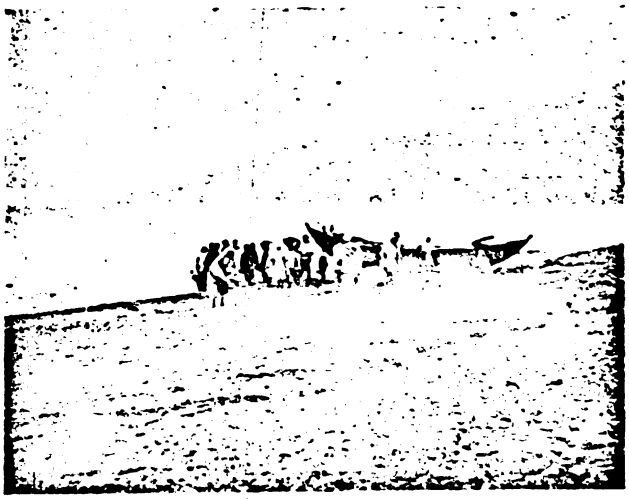
Fishing boat of the Mazuza



Repairing a seine, Tiguisas, Ghomara



Hauling a net ashore, Tiguisas



Fishing scene showing Ghomaran boat type

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their own. The only logical place in the present Rif, northern Senhaja, and Ghomara which might have interested them was the plain of the Garet, and the lands immediately adjacent to it. This territory was easily reached, since travelers had but to follow downstream from the headwaters of the Muluya, a region to this day occupied by the Beni Hillal.[1] Bodies of them pressed along the eastern bank of the Muluya, while some of those who crossed this stream were powerful enough to remain, although mixed with Riffian blood. These were the Ulad Stut, "the children of the ogress," whose territory now lies between the tribes of Galiya, Beni Bu Yahyi, and Kebdana. The Ababda, today a family of nomads ranging in the northern Metalsa and counted as Metalsa but speaking only Arabic, may be another relic of a sporadic Hillali invasion.

These Hillali Arabs, although doubtless as worthy as their more acclaimed predecessors, were distinctly less cultured. Where they came into contact with the Berbers their influence could be none other than to destroy or weaken not only cultural factors of Berber origin but also Islamic rites and manners requiring a relatively high religious knowledge and degree of koranic literacy, both of which the Riffians had to a certain extent acquired from the dynasty of Saleh ibn Mansur and from other early Arab contacts.

The question of the invasions and influences of the Zenata is a much more difficult one than that of the Hillali Arabs, whose entrance can be definitely dated.

THE ZENATAN INVASION

The Zenata, one of the great Berber families, according to the genealogists,[2] were native to the northern borders of the Sahara, between Zab and Tafilelt.[3] This territory seems to have been their early habitat and is occupied by members of their group today. They likewise extended, however, northward along the arm of the Sahara, which reaches up past Figuig and Tafilelt along the Muluya bed, reaching the sea in the arid expanse of the Garet.[4]

How early the Zenata, nomads by instinct, wandered up the Muluya into the territory now called the Rif is difficult to determine. Before the invasion of the Beni Merin — the classic and official entry of the Zenata — various tribes and families of them must have been working their way northward for a long while. El Bekri establishes the presence of Zenata two days' march north of Tafilelt.[5] Zenatan groups called the Zenata of Taberida[6] ranged on the outskirts of the territory of Nekor, and the Beni Yala (reigning in Tlemcen from 1002 to 1080) whose armies raided the Riffian kingdom, were of Zenatan origin.[7] Furthermore, the Beni Znassen, a Zenatan tribe now living between the Muluya and Ujda, were noticed in that territory in the thirteenth century.[8]

Whatever the contacts between the Riffians and the Zenata may previously have been, opportunity for their increase arose when the Beni Merin, the leading family of the Zenata, crossed the Atlas and attacked the Muwaḥaddi empire, centred in Fez.[9] The Beni Merin entered the Rif, presumably through the Garet and across Beni Tuzin, and defeated

[1] Arabs, presumably dating from this period, now occupy the land immediately south of the Gzennaya, in the neighborhood of Msun.

[2] Ibn Khaldun, vol. I, p. 175.

[3] Ibn Khaldun, vol. I, p. 195.

[4] *Ibid.*, p. 181.

[5] Ibn Khaldun, vol. I, p. 121.

[6] Meakin, p. 89 (from Raod el Ḳarṭas, p. 400).

[7] El Bekri, p. 281.

[8] *Ibid.*, p. 156.

[9] *Ibid.*, vol. I, Introduction, p. xxxiii, also vol. II, p. 288.

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the Muwahaddi army in 1216 in a great battle on the banks of the Nekor,[1] a contest the reputation of which remains in oral tradition to this day.

Abd el Hakk, the Merinid ruler, married a woman of the Ulad Mahalla of Tafersit, according to Ibn Khaldun,[2] or of the Beni Tuzin, according to Marmol.[3] This Riffian woman became the mother of Yakub ibn Abd el Hakk, the third Merinid ruler of Fez, who, through his relationship with them, released the Beni Tuzin from all necessity of paying taxes or tribute of any kind.[3] In 1666, four centuries later, the evidence of Frejus indicates,[4] this privilege was withdrawn.

According to Marmol the Beni Tuzin are of Zenatan origin,[3] as are the Metalsa, whom one can recognize under his name of *Batalisa*,[5] especially as the *b* is retained to this day in the name which the Gzennaya call them, *Ibdarsen*. Marmol states definitely that the *Batalisa* were relatives of the Beni Merin and were sent into the territory of the Garet by them.[5]

The names Beni Tuzin, Metalsa, Beni Said, Beni Ulishk, and Tafersit do not occur until after the invasion of the Beni Merin. The Beni Said are mentioned by Marmol,[6] who distinctly states that they were of the house of Ghomara. Although Marmol mistook a traditional alliance for a blood relationship, his statement indicates that elements in these two tribes were old enough to have participated in the war of the Senhaja and Ghomara, or at least old enough to have been assigned a part in this conflict by the *horror vacui* of tradition. The name *Beni Tuzin*, in its Berber original, *Asht Uzin*, means "the children of the half," thus perhaps implying a mixed origin.[7]

The path of the inroads of the Beni Merin may be clearly traced in the list of tribal ancestors given in the preceding chapter. Although we can thus date a definite Zenatan invasion of the Rif, we must not deduce from it that Zenatan influences had not been at work in the region earlier. El Bekri's mention of Zenata to the south of the Garet indicates that the Zenata were in his time neighbors, if not invaders. The Beni Merin may be said to have organized and intensified the Zenatan influence on the Rif, but not to have commenced it.

With the coming of the Zenata, the fifth and last of the great invasions of or diffusions into the Rif in history and in clear tradition took place. These five were the traditional invasions of the Ghomara and of the Senhaja, the first Arab invasion and the establishment of the kingdom of Nekor, the invasion of the Beni Hillal into Morocco, and the invasion of the Zenata. The three Berber and two Arab contacts described have had more recognizable influence upon the present racial and cultural composition of the Rif, Senhaja, and Ghomara than have the hypothetical influences of classical civilizations and of the Vandals. After the fall of the Merinid empire the Rif, Senhaja, and Ghomara assumed their modern character, becoming increasingly jealous of outside interference and less and less known.

[1] Meakin, p. 90 (from Raod el Kartas, p. 408, and En Nasiri, vol. II, p. 4).
[2] Vol. II, p. 123.
[3] Chap. 98.
[4] Pages 37–38.
[5] Chap. 92.
[6] Chap. 96.
[7] Ghirelli, following Schefer, the editor of Leo Africanus, claims that *Tuzin* is derived from *Tudyin*, or, following our own principles of transliteration, *Tujin*, the name of an important sub-group of the Zenatan stock. The only apparent basis for this is the similarity of the names, and the fact that Zenata invaded that region immediately before the name *Tuzin* first appeared. Schefer takes it for granted that in calling them *Tuzin* Moulieras was making a mistake, or was perpetuating the so-called mistake of Leo Africanus. Schefer's error is pardonable in view of the ignorance of Riffian geography in the time in which he wrote. See Ghirelli, *La Kabila de Beni Tuzin*, pp. 51–52; Leo Africanus, vol. II, p. 322, n. 1; Auguste Moulieras, *Le Maroc Inconnu*, vol. I, p. 113.

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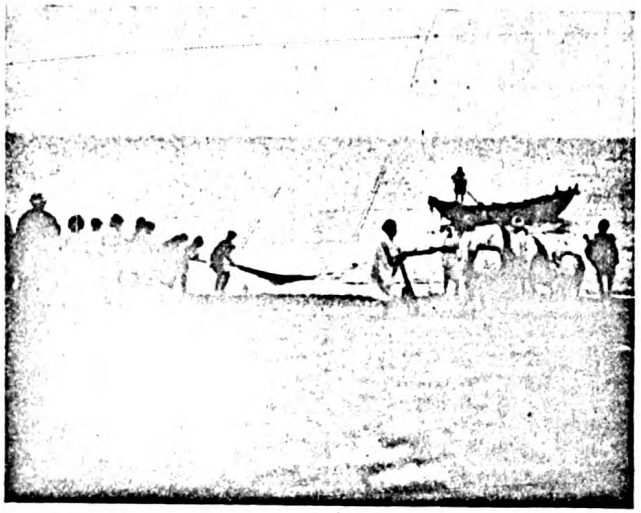
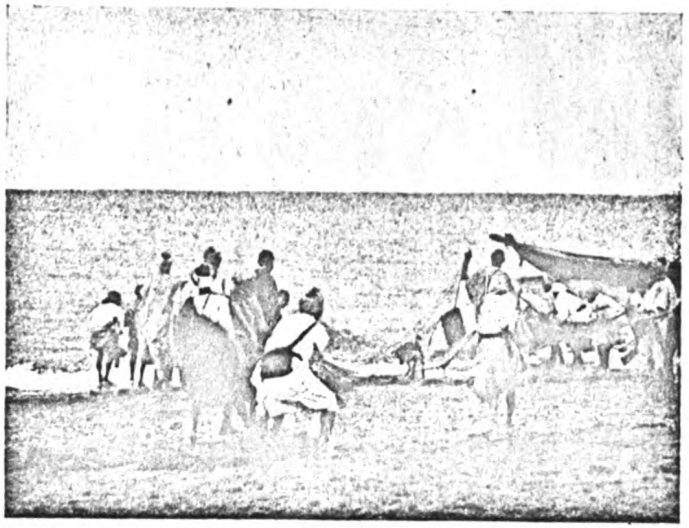
NAVIGATION AND FISHING 2





Beaching the catch, Tiguisas, Ghomara

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CHAPTER IV

MATERIAL CULTURE

HUNTING

HUNTING is carried on in three ways in the Rif, by means of the rifle, the net, and the trap. In the fall and winter the Riffians, and especially the mountaineers of the Senhaja, spend as much of their time as they can spare climbing about the mountain sides in search of game.

The weapons with which they hunt are confined to rifles of European manufacture and Taghzuthi flintlocks. Their chief quarry consists of rabbits, hares, pigeons, partridges, wild boar, and, where there are any, the aoudad, wild ox, and gazelle. Since before any animal may be eaten by Mohammedans it is necessary that its throat be cut ceremonially, — the butcher pronouncing the formula "*bism illah, ullahu akbar*," — the Riffians have devised several means of counteracting the consequences of the game's dying before this has been done. The hunter when loading his gun may kiss the lead ball, pronouncing the formula of *hallala*, or the sacrament, over it, and any animal shot by that ball will be clean and edible. Another and more convenient method is to have a gunsmith chase the words of the formula in silver wire upon the stock or barrel, and thereafter any game shot by that rifle will be sacramentally edible. In the case of the wild boar, the hunter does not worry about giving it the *hallala*, since it is forbidden food in any event.

Nets are set up across a path or entrance to a clearing on the side of a hill, and long palisades of brush are erected like wings on either side of the net, slightly wedge-shaped, and at an angle of less than 180 degrees to each other. Beaters start at the foot of the hill and work up, converging until they reach the ends of the palisade, and thus drive into the net whatever small game they may have intercepted. In this way they catch rabbits, hares, partridges, foxes, jackals, and other animals. Although they kill the foxes and jackals, they never eat them.[1]

Ferrets are used in winter time to unearth rabbits. They are completely tamed and well trained.

Traps are made by local blacksmiths and are based on the same mechanical principle as the type with which the reader is familiar. The differences are: (1) The base of the trap is a frame, rectangular in shape, instead of a plate. The jaws are hinged into the sides of this. (2) Each jaw is bent in two right angles instead of in an arc. (3) The spring, attached to one arm of the frame, operates at right angles to the axis of the jaws instead of parallel to it. Thus it actually touches but one side of each jaw, instead of both sides, as in modern traps. (4) There is no trigger or bait-holder. The traps are set by means of two sticks, one put under the end of the frame and over one open jaw, and the other under both sides of the frame and over the end of the first stick. The second stick thus is caught in the jaws when the trap is sprung.

The trap is buried in the path or in front of the hole of any small animal, the top being covered with leaves and dust. The two sticks are so arranged that the slightest motion will

[1] I have seen tribesmen of the Zaer, near Rabat, eat a jackal.

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separate them and release the jaws. No bait is used, nor is any attempt made to smoke or otherwise deodorize the trap.

Wild animals which are shot, netted, or trapped are not flayed by inflation, as is the case with domestic animals. (See plate 32.) The skins must be taken off laboriously with a knife, otherwise, it is thought, bad luck will befall the hunter and he will never catch any more of that species.[1]

When a Riffian has the good fortune to kill a wild ox, he takes particular pains to eat a portion of its head, thinking that in this way he will be lucky in hunting these animals in the future.

In the days when lions were common in the Rif, they were seldom hunted. The Riffians regarded the lion as a beast on a plane of importance little below that of man. It is said that a lion would never touch a man passing him unless the man made some aggressive motion, in which case the lion generally won. People passing lions used to intone formulae entreating the "father of the heart," as he was called, not to molest them. It is said that lions became rare or extinct not through the device of men, but through the increasing scarcity of wild boar, which formed their principal diet.

FISHING

Fishing is carried on all along the coast from the mouth of the Muluya to the western borders of the Ghomara. There are two principal methods, seining small fish near shore and catching larger fish on hooks in deep water.

The seine, called *tharrasha*, is made of hemp and is attached at either end to two long ropes. A boat takes the net out, with one rope on shore in the hands of a number of men. When the boat has reached the end of the rope, the net is let out in a semicircle, and the boat is then rowed back to shore, where the other rope is handed out as far from the first as possible. The two groups then pull on the ropes, gradually lessening the distance between them as they do so. The boat goes out again and is rowed in behind the net, to be on the spot in case of trouble. When the net is finally beached the crowd rushes in and scoops up the still leaping fish in baskets; the fish are put in a common pile on the sand, and are then divided equally among the families assisting in the catch. (See plates 5 and 6.)

ANIMAL HUSBANDRY

The domestic animals kept by the Riffians are the horse, ass, mule, camel, cow, sheep, goat, dog, cat, ferret, and pig. Of fowl, the hen is the only one domesticated. Bees are also kept.

Horses are kept exclusively for riding; they are for the most part of the barb type, a strong, heavy, cart-horse breed; Arab horses, of pure or mixed blood, are ridden by the nomads of the Garet. Horses are found in greatest numbers in the east, among the Beni Bu Yahyi and Metalsa primarily, and to a lesser extent among the Galiya, Kebdana, Beni Said, and Beni Ulishk, and in Tafersit.

In the rest of the Rif, and in the Senhaja and Ghomara, the character of the country is such as to preclude the common use of the horse. In the tribes of Gzennaya, Beni Amart,

[1] This identical belief is found among the Passamoquoddy Indians of Maine, who feel that such an inflation is an insult to the animal.

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Beni Urriaghel, Temsaman, Targuist, and Bokoya, and in the western maritime tribes, horses are owned only by very wealthy and influential men, who buy them in the lowlands, keeping them more for display than for any other purpose. In the Senhaja Sghir and the Ghomara horses are very seldom encountered; in fact none were owned in Beni Bu Nsar, Beni Seddath, Beni Khennus, or Ktama at the time of the Spanish conquest. The sedentary peoples who own horses keep them in the courtyards of their houses and take excellent care of them; without exception the animals are fat, well fed, and not overworked.

Donkeys are found throughout the region, more particularly in the lowlands. They are of a small hardy breed. During the war the Riffians stole many large Spanish jackasses from the military encampments to increase the size of their own animals. In the high mountains of the central Rif and Senhaja, even donkeys are none too frequently encountered. They are used for transport, riding, threshing, and the operation of olive-grinders. They also are kept in the courtyards of the houses at night and are fed on barley and straw.

Mules are more common than either horses or donkeys. For the most part, the breeding of horses, donkeys, and mules is carried on in the lowlands, where the animals are bought by the mountain people. Mules are more highly prized than either of their parental stocks, since they can carry a much heavier load than donkeys and can navigate the steep trails and passes of the mountains better than horses. They are also used for threshing and for the operation of olive-grinders.

Camels are owned only by the Metalsa and Beni Bu Yahyi. Of the usual dromedary type, they are used wholly for the transport of goods and are only exceptionally ridden.

Sheep are kept principally by the nomadic tribes, and to a lesser extent by the lowland tribes of the eastern Rif. They are found only in the southern part of Gzennaya and are seldom raised in the northern section of that tribe. They are likewise absent from the southern Beni Urriaghel area and are rare in the mountains of the western Beni Tuzin. In Beni Amart and Targuist, on account of the flat plateau-like nature of the territory, sheep are fairly numerous. Throughout the Senhaja Sghir and Ghomara they are practically unknown, and of the Eastern Arabophone Senhaja tribes only those on the southwestern extremity own them in any quantity.

Goats, on the other hand, have an opposite distribution. Although they are known and kept everywhere, their numbers increase with the altitude. On the lowlands the sheep are more numerous. In tribes on higher levels, such as Temsaman, the numbers are about even, and in the mountain nucleus at the headwaters of the Nekor and in the Senhaja Sghir the goats hold undisputed sway, for they are better able to withstand cold and to climb about mountain crags. The breeding of sheep, on the other hand, where feasible, is more lucrative than that of goats. This distribution does not, however, indicate the priority of goats over sheep in the Rif (even though this may well be the case), since the environmental factor is, in this particular instance, the governing one.

Sheep and goats are pastured by small boys, usually the sons of the owners, who amuse themselves by shooting with flintlock guns at pigeons, grouse, and small quadrupeds. Sheepfolds consisting of rough stone enclosures are used at night in stormy weather, and in winter the flocks are usually kept in the courtyard when the weather forbids their presence outside. The purchasing or raising of sheep or goats among the sedentary tribes depends largely upon the presence of sons of proper age to tend them, and the animals are usually sold when the sons have grown too old. In Beni Bu Yahyi and Metalsa this restriction does

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not hold, since sheep-herding is done by grown men, especially old men whose age of usefulness in other pursuits has passed.

Dogs. Three breeds of dog are found in the Rif. The most common is the ordinary small yellow cur, with lop ears like a jackal and a bristly mane, which serves as a sentry during the night, is seldom fed, and keeps up a terrific racket, yipping at all hours. These dogs, which frequently breed with jackals and can with difficulty be distinguished from them, are half wild, back away snarling and yelping when approached, and are usually ignorant of human affection. When kept, however, by people kindly disposed to them, as is sometimes though rarely the case, they develop into quite tractable and intelligent pets and companions.

The second variety is a large shepherd dog, resembling a Scotch shepherd, with broad head and shaggy coat. Such dogs are treated with greater respect and are fed regularly. They go out with the boys tending the sheep, and show great intelligence in assisting them. The boys tending the sheep throw stones at them with plaited *halfa* slings, while the dogs snap at the heels of the more distant members of the flock; and between the efforts of the slingers and those of their dogs, the sheep seldom stray. Despite the care of the boys, both sheep and goats sometimes fall prey to the larger variety of *oshun*.[1]

The third type of dog, the aristocrat of canine society in Morocco, is the *sloughi*, the well-known North African greyhound, a smooth-haired variety, covering every possible range of color. The *sloughi*, kept exclusively for hunting, is confined in the Rif to the tribes of Beni Tuzin, Metalsa, and Beni Bu Yahyi. It is likewise kept by the Beni Znassen, a purely Zenatan tribe outside the Rif; it is considered by the Riffians a Zenatan introduction.

Cats are rare and serve as house pets, as elsewhere.

Ferrets are kept in cages in the houses and are used in hunting.[2]

Cattle occupy the first place among Riffian domestic animals. They belong to a short, shaggy-haired, stocky breed, generally red in color and long-horned. Although small, they are very hardy and well adapted to mountain life. They are kept by every family. No house which contains a woman lacks a cow, from the highest mountains to the desert of the Garet. While the weather is favorable, they are pastured in fields or on the less rugged mountain slopes and tended by women or girls; during the winter, and while the storms of October and November are raging, they are kept in the house. To conduct them to pasture is often a difficult feat, on account of the narrowness and steepness of the paths; often four or more women, pulling on ropes, horns, and tail, are required to guide a cow over a dangerous place. Despite this care, many fall and break their legs or necks.

Cows are kept in the house during the night, in the same room in which the family cooks, eats, and sleeps. The cow is given the lower fourth of the chamber, which is sunk below the level of the habitation floor. She is fed on straw, grass, and the stalks of maize. During the late winter, before the green shoots have appeared on the mountain sides, women often spend all their time in a search for weeds and grass to feed the family cow.

Bulls are owned in every village and are put to stud for hire. The mating of cattle is, curiously enough, the task of women. The owner of the bull and the owner of the cow each sends his wife to conduct his animal to a secluded place previously agreed upon, and the husbands take care not to approach the spot. For any man to witness the mating of cattle would be a shameful experience, although women may look upon it with impunity.

[1] See Introduction, p. 13.

[2] See below, p. 37.

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TRANSPORT 1

Common method of transporting water, Ajdir, Beni Urriaghel

Method of carrying burdens on the back, Beni Said

Boy bringing home brush, Beni Amart

Bridge made of two parallel logs, Suk et Tnine, Taghzuth

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Cattle are used for meat, milk, hides, and traction. Bulls are kept for sacrificial purposes, since several forms of ritual require the sacrifice of a bull. They are never castrated, the same being true of horses and all other domestic animals.

Swine. The problem of the domestication of swine opens up the most difficult aspect of Riffian culture with which one has to deal. Riffians have kept and probably still do keep swine, but they are extraordinarily secretive about it. For some strange reason, they are as ashamed to discuss the matter with a Christian as with an Arab. The practice is as wrapped in secrecy as the witches' sabbat of the Middle Ages. Families which keep swine never bring them to market, never admit that they keep them, and take them out of the house before guests arrive.

Swine were formerly raised in most of the nuclear mountain area of the Rif — in Gzennaya, Beni Urriaghel, Beni Amart, and the Senhaja Sghir. A generation ago the people of Iherrushen and Ikhuanen of northern Gzennaya discontinued the practice, as the result of a pilgrimage to Mekka performed by one of their prominent men. Within the last six years swine have been kept at Inhanahan, in Gzennaya.

Whether swine are still owned anywhere in the Rif or Senhaja I cannot say, but I suspect that they are. They are not the descendants of any long-domesticated breed, but are bred from individuals caught in traps on the mountains; seldom does a litter have a domestic history of more than two or three generations. When all have been killed off, more are caught and bred. Thus swine domestication is, or was, either in an incipient stage or in the last stage of decadence. The animals are kept in the house, but are confined in a separate room, the door of which is closed at night. In the daytime they are taken out on the mountain slopes to feed on acorns and roots. When they are slaughtered, no *hallala* is performed.

Hens, happily, are kept openly, and present no such difficulties to the investigator as do swine. Their presence is manifest throughout the house and the courtyard, and especially on and about the refuse pile, which is located at some distance. They are the exclusive property of the women, who sell them and their eggs independently of their husbands; they keep the money thus earned, but husbands have the right to demand a hen or two on the occasion of a guest's arrival. Widows who live alone often support themselves entirely by keeping hens, since persons charitably inclined buy them from widows by preference.

Bees provide an important article of local diet. The Riffians are expert in the art of caring for bees, building hives of basketry, wood, and cork. Sometimes hollow logs are used, and the scooped-out bases of yucca plants. The hives are usually kept in caves or in crannies in the cliffs above the villages. In the spring the bee farmer transports his swarm to new hives and removes what honey is left from the winter, since he does not take it out in the fall. Honey is separated from the wax and is kept in jars. Apiculture is most commonly practised in Gzennaya. In many parts of the Senhaja Sghir bees are not kept on account of the cold.

Individual owners of bees do not as a rule care for their own hives, but put them in charge of a bee expert, who takes a previously agreed portion of the honey as his payment. There is generally but one such bee farmer in the village, although most of the families own at least one hive apiece.

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LAND TRANSPORT

Land transport in the Rif, Senhaja, and Ghomara is confined to the bearing of burdens by man and by domestic animals. Wheels and all types of vehicles are unknown. Human transport consists usually of the carrying of loads on the back. (See plate 7.) The negroid method of carrying on the head is not employed, nor is the tump-line used. Women carrying water from the spring or brook to the house use a two-handled jug, with a rope leading from each handle over the shoulders and held or tied in front. The same method is used for carrying bulky burdens such as loads of brush or of charcoal. Men generally carry things in their hands, or put them in the hoods of their garments.

Animal transport is confined to donkeys, mules, and camels. (See plate 8.) Horses do not carry burdens. For donkeys and mules, a special pack-saddle called the *hallas* is used. This is a large heavy object made of cloth and stuffed with straw, covering, in most cases, the entire back of the animal. The top is flat, and the edges of the upper surface are often raised. The *hallas* is held on by a rope or basketry strap passing under the animal's neck and by another under its tail. There is no girth; gravity, size, and the two straps are enough to keep it on when paniers are not used.

The paniers, called *shwari*, are of twilled basketry, a double container with a handle on each side and connected by a strip of basketry wide enough to cover the top of the pack-saddle so that the two containers will hang at the sides. The paniers are filled with whatever objects are to be transported, generally simply thrown in. Soft objects, such as blankets or sacks of grain, are set on top of the flat portion, and long ones, such as tools with handles, are lashed to the sides. A water jug of porous earthenware is often thrust into one of the paniers in such a position that it can be easily extracted. After the load has been placed, a cord is run between the handles of the *shwari*, drawn tight over the top, and carried under the animal's belly as a girth.

Camels have no packsaddles. A long, flapping type of *shwari* is sometimes used, without girth. This falls off whenever the camel becomes excited and breaks into a run. A more efficient method of packing these animals is by tying packages on either side of the hump, as can be seen in the illustrations in plate 8.

Horses, mules, and donkeys are ridden, horses either bareback or with an Arab saddle, imported from the Arab cities of Morocco. These saddles are expensive and difficult to obtain, hence bareback riding is the usual type. Riffians make notably poor riders, except for the tribesmen of Beni Bu Yahyi and Metalsa, who are accustomed to that means of locomotion. The bridle is generally imported and of Arab manufacture.

Mules and donkeys are ridden with the *hallas*, either bare or with the addition of a *shwari* and its load. Bridles are never used with donkeys and seldom with mules, a simple hackamore acting as substitute. Mule bridles, when used, are imported from Fez or other Arab centres.

Camels are almost never ridden by the Metalsa and Beni Bu Yahyi. They are used for transport and for milk, and attempts at riding them are sporadic and experimental.

In general, riding is an exceptional method of travelling, and the Riffian in most cases journeys on foot. Because of the ruggedness of the country, he can often make better time that way than if he were to ride. The Riffian can walk for long periods over the roughest ground without showing signs of fatigue, often bursting into trots for several miles at a time

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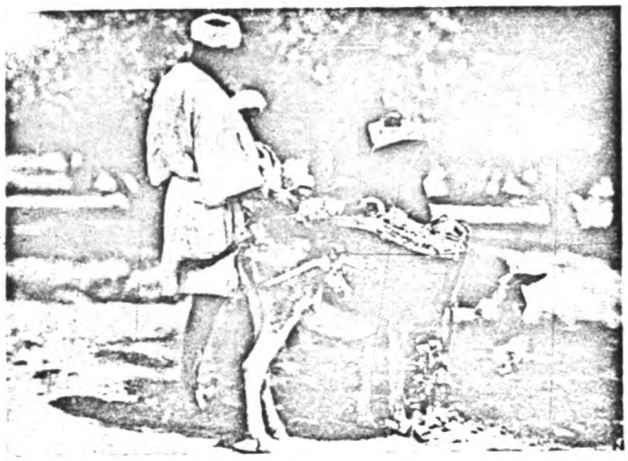
TRANSPORT 2



Donkey with *hallas* and *shwari*, Gzennaya

Donkey transport, Ajdir

Mule with *hallas* and *shwari*,
Beni Bu Frah

Camels, showing method of attaching small loads, Metalsa

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and making almost vertical short cuts to save time and distance.[1] He generally runs when going down hill. He carries no extra clothing while travelling, nor any blankets, simply a small supply of concentrated food in his scrip and what arms and ammunition he can afford, as well as a cane with a spiked tip, generally of European manufacture, on which to steady his rifle while firing. Now that rifles are no longer carried, the cane persists as a walking stick.

NAVIGATION

The Riffians and Ghomarans, although both are essentially land peoples, take advantage of their proximity to the sea by constructing vessels and making short voyages in them. The Ghomarans take to the sea more frequently than do the Riffians.

The Riffians and Ghomarans construct two kinds of boat, the *thagharaboth*, or skiff, (see plates 5 and 6) and the *thagharaboth n jkrua'*, or sailboat. The sailless skiff seems to be commonest and is the indigenous type. Sails are supposed to have been taken over from the Arabs, although the geographical position of this coast must certainly have exposed it to contact with sail-using peoples in antiquity.

The skiff is a long narrow craft, usually about twenty feet in length, with bow and stern slightly curving upward. It is not decked over. The sides are equipped with double thole pins, *izhizh*, into which are fitted pine or cedar oars, long sweeps, *imkathafen*. It is steered by a primitive steering-oar, *demam*, held against a peg on the right stern.

This type of boat is made of cedar or pine, all hand-adzed, and caulked with tar, thickly smeared all over the hull so as to make the entire boat black in color. Pegs are used along the keel and gunwales; in order to strengthen the hull the planks are tied together with ropes through holes drilled near their edges and well plugged with hemp and tar.

The design on the boats is a simple right-angled zigzag in red paint, running horizontally near the bow. There is no trace of an eye motif on the bow, unless this be one.

Skiffs are used everywhere along the coast, but sailboats are employed less commonly and only at the better harbors. There is a single mast, called *sari*; the sail, *er krua'*, has no boom, but is attached to the mast by a long diagonal spar in felucca rig.

Skiffs are used in fishing with a net, and sailboats for fishing in the deep sea with hooks. The sailboats are likewise used for what slight coastal trade exists, and for carrying eggs and other products to Tangier and Gibraltar.

Shipbuilding was carried on, until the recent war, at the ports of Mtiwa and Ghomara, where cedar and pine were available near the shore. Since the war this shipbuilding has ceased, and the sailors buy second-hand European boats to replace those which they lose or discard. There are still plenty of native-built boats along the coast, but another ten years will probably see the last of them.

AGRICULTURE AND THE GATHERING OF WILD PLANTS

Agriculture is the most important trait of Riffian life and culture. It is the basis of existence, and is worthy of intensive study, especially by economic botanists. The anthropologist untrained in economic botany can at best merely record the external and economic factors, while the botanist may trace the origins and successions of the plants used and cultivated.

[1] The winner of the most recent Olympic Marathon was a Riffian, el Wafi, of the Beni Urriaghel.

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Riffian acquisition of vegetable food may be divided into four processes, some of which may be developmental stages, and all of which are in contemporaneous use.

1. The gathering of edible wild plants.
2. The care of fruit and nut-bearing trees and of vineyards.
3. The care of gardens.
4. The cultivation of grains and leguminous plants.

The following subjects also pertain to agriculture and vegetable food-getting.

1. A calendric cycle of agricultural events.
2. Tools and machinery.
3. Communism in agriculture.

Collecting and Gathering. There are certain wild products growing on mountains, in valleys, in springs, and on refuse heaps, which are of food value and are collected and eaten, either from choice or as emergency rations in time of famine, although no attempt is made to cultivate them. So far as can be determined, they are as follows.

azemmur,[1] the wild olive.

erbejuth,[1] the oak. Both acorns and the tree upon which they grow are called by the same name.

adheman,[1] the hawthorne. The haws, called *zaaror*, are gathered and eaten.

larnej,[2] a wild lemon tree, probably escaped from cultivation.

tuth,[2] the mulberry, at present wild. It was probably introduced earlier and then abandoned.

kabb ul muluk,[2] the wild cherry, with probably the same history as the mulberry. Both trees are now cultivated by the Senhaja.

sasanu,[1] the arbute, or strawberry-tree. Its fruit is eaten fresh, also dried and put into bread.

thabgha,[1] wild blackberries.

tuzzelt,[1] a bush the pod of which is eaten.

thakhfar,[1] a wild rose, the pod of which is eaten.

askum, wild asparagus.

matisha, the wild tomato, found in old refuse heaps. Its cultivation has been abandoned.

thebisesth,[3] a plant growing in the mountains, eaten as a green.

yanush, watercress, or a very similar plant.

thezhiuma, another water plant, growing in springs.

thafa ikshuth, a wild plant resembling celery.

thighigheshth,[4] a wild plant the roots of which are boiled and used for washing wool. Its leaves are cut up, boiled, and eaten.

benaaman, a wild poppy. Women eat its leaves, and children its buds.

imzwar, a plant resembling shamrock or clover. Its leaves, slightly sour in taste, are eaten.

iuasrin, mushrooms.

[1] See Introduction, p. 8.

[2] The wild lemon, cherry, and mulberry were not mentioned in the Introduction because they are not indigenous.

[3] This is perhaps related to the root given by Laoust (p. 508) for mallow. *Tibidas*, in the Zemmour dialect, is the closest.

[4] Laoust (p. 39) suggests that this may be *Sapanaria vacaria*.

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The gathering of wild vegetable products is traditionally considered to antedate agriculture. Tales are told of the times when the Riffians subsisted on these products and game alone. In Ktama, where agriculture is difficult, the gathering of wild plants, especially *tuzzelt*, forms an important occupation. At the end of winter, when the dried fruit is gone and when the larders are low, many Riffian families would die of hunger if their womenfolk did not go out on the mountain slopes and up the watercourses looking for these natural foods.

The green plants, such as watercress and asparagus, are subject to a dietary sex tabu. Woman only may eat them. The reason given for this distinction is that they produce blood, fat, and soft flesh, desirable in women but not in men.

Mulberries and cherries were probably introduced by the Arabs and later abandoned. Mulberries are not considered good food and are seldom eaten except through necessity. Tomatoes were probably introduced from Spain and then given up.

Cultivation of Fruit and Nut Trees and of Vineyards. *ziton* (male), *misala* (female), the domestic olive tree. The male tree produces large olives low in oil content, which are preserved in lemon juice and eaten as a relish. The fruit of the female tree is pressed into oil. As a rule all the male trees in an olive yard are cut down with the exception of one, which is left to fertilize the female trees. The olives are called by the names of the trees which bear them.

arman, the pomegranate tree. The Riffians recognize sex differences in pomegranates, considering that the fruit with a thick skin and large, hard seeds in the granules is produced by the male tree, whereas the better fruit is produced by females. As a rule, the male trees are all cut down but one, which is left for fertilizing the others. Sometimes male trees are left, so that the fruit may be sold in markets frequented by people unacquainted with the difference. The fruit and tree bear the same name.

er ghas, the fig tree. There are four varieties of fig trees, *aseiri*, *aghudani*, *awar n aksi*, and *abaran*. The fruit borne by the *aseiri* is round, with longitudinal purple and green lines; that of the *aghudani* is long, pear-shaped, and purple; that of the *awar n aksi* is round and light green. There are two varieties of *abaran*, one of which is round and green and the other long with black or purple lines. The three first varieties bear twice a year, in June and in September. The June figs, called *er bashor*, are eaten but not dried, except for use as medicine, since they contain but little sugar. The September figs, called *thezath*, are dried. The *abaran* varieties bear only in September. The Riffians say that the *abaran* types are the only indigenous strains, and that the *aseiri* and *awar n aksi* came originally from the Arabs, whereas the *aghudani* is derived from the Negroes.

shukwar, a wild fig. Planted, it is said, by birds that have eaten cultivated figs, this fruit is useless for eating, but is employed for magical purposes. Each year the women and children go out and gather the wild figs when ripe, tie them together in pairs with grass, and hang them on the branches of the domesticated fig trees. There are said to be insects in the wild figs which come out and touch the buds of the domestic figs. It is thought that if these wild figs were not so hung and if the insects from them did not touch the buds, the cultivated figs would not bear.[1]

[1] Westermarck (p. 190) states that the Riffians hang male figs in female trees, in order to fertilize their fruit. A small insect, *Blastophaga grossorum*, bores in and out of the figs, fertilizing them. Westermarck refers to Elfving's *De Vigtigaste Kulturväxterna* (Helsingfors, 1895), p. 74.

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lishin, the orange tree. Riffian oranges are of the common North African variety. Tangerines are not grown in the Rif. It is said that the fruit of the male orange tree is elongated, while that of the female tree is round. Orange shoots are grafted to wild lemon trees without distinction of sex.

limon, the cultivated lemon tree, as distinguished from the wild variety.

tifah, the apple tree. Riffian apples are small and stunted, and not very palatable. They are not commonly grown except in the highest mountain tribes. The apple shoots are frequently grafted onto hawthornes. A sex distinction is made between the apples: the male ones are said to be large and white, and the females red.

firas, the pear tree. It is said that the male pear is white, while the female is reddish. Grafting onto hawthorne is common.

thaghieshth, the walnut tree. Walnuts are called *nue n thaghieshth*. The Riffians distinguish male from female walnut trees as follows: The male tree bears a hard-shelled nut with little meat; the female's nut is thinner shelled and meatier. Usually the males are cut down to make room for others. No grafting is attempted with walnuts.

juz, the almond tree. The nuts from this tree are called *nue*, the same word which is applied to walnuts. It is said that the male almond bears a nut with a single meat, while the meat of the female is double. Almonds, like walnuts, are not grafted.

er mishmesh, a species of plum tree. The sex of plums is distinguished by breaking the stone and tasting the meat inside. If it is bitter the tree bearing it is supposed to be male. Plums, like apples and pears, are grafted to the hawthorne.

er barkok, the apricot tree. Males are said to have thick skins, and females thin ones. Males are preferred for export, and females for drying.

er khok, the peach tree. The Riffians do not distinguish sex in the peaches, and do not attempt to graft them.

The Riffian prizes his fruit and nut trees highly, perhaps even more than his grain and vegetables, since on the dried fruit of these trees and upon raisins his family is often forced to subsist for months at a time during the winter. He digs around and manures the roots of the trees every spring, and leads irrigation ditches to their trunks. He keeps them carefully pruned and trimmed, and diligently removes insect parasites from leaves and branches.

Not only does the Riffian take great pains to distinguish between the sexes of the trees, but he also imposes a sex tabu upon the eating of the fruit of two of them, walnuts and almonds. Walnuts may be eaten only by women, and almonds only by men. The reason for this is symbolically sexual, since walnuts, on account of their wrinkled appearance, are supposed to produce a drying and shrinking, whereas almonds are supposed to produce fluidity, and potency in men. Both walnuts and almonds consequently play a prominent part in the wedding diet.

Vineyards. Grapes are as important to the Riffians as fruits and nuts. Those grown in the Rif are a large reddish-purple variety, resembling Malaga grapes in form and in taste. They are grown on vines set out on high mountain slopes too steep and too barren for the cultivation of anything else. The vines are kept trimmed, and in spring the soil about their roots is loosened. It is seldom possible to irrigate them, although fertilizer is brought laboriously uphill when possible.

Among the Beni Bu Nsar, Beni Seddath, and Beni Khennus, and in Taghzuth, another variety of grapes is grown, smaller and bluish-purple in color. These grapes are hardier

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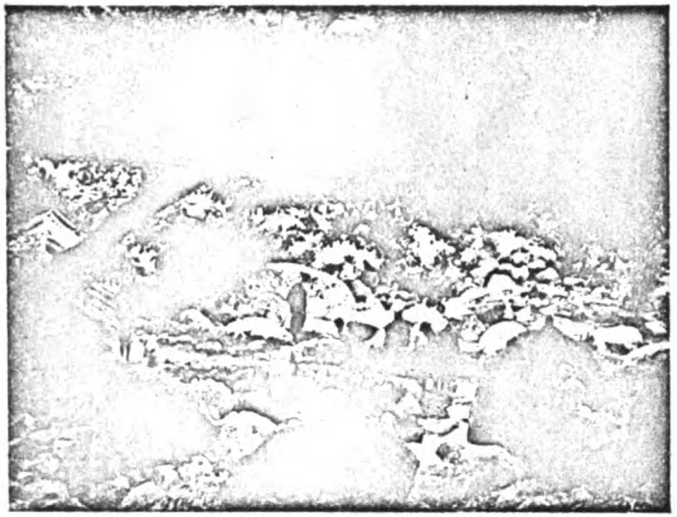
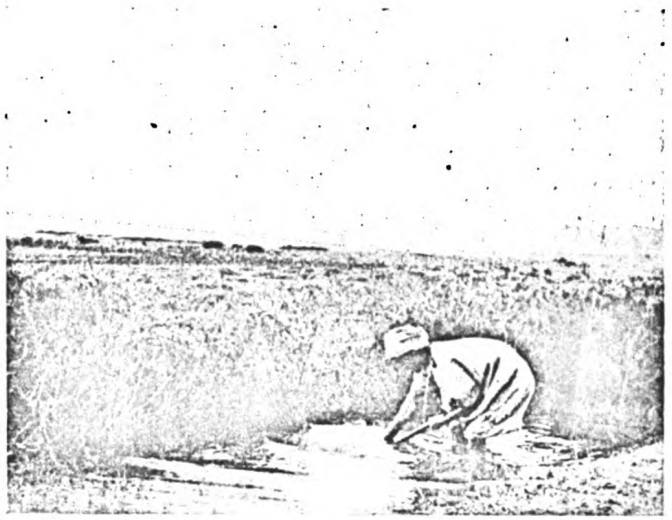
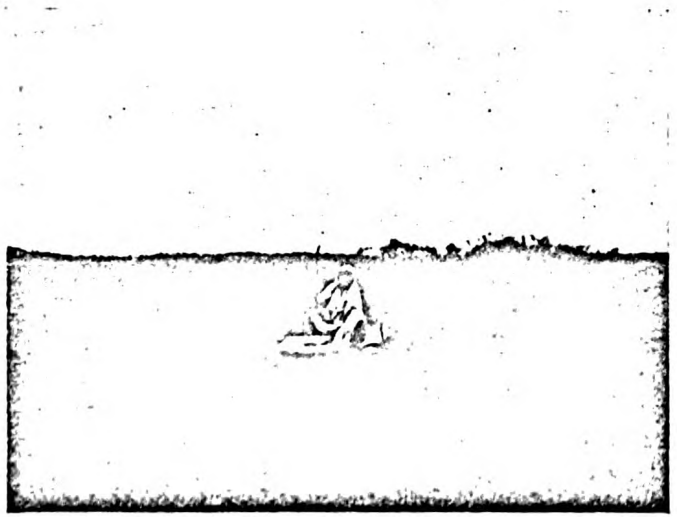


Leading an irrigation ditch from the stream, Tezarin, Taghzuth



Repairing a leaky ditch, Tiguisas, Ghomara



Laundering beside an irrigation ditch, Tiguisas, Ghomara

Ploughing under the fig trees, Ajdir, Beni Urriaghel

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than the Riffian variety. They are grown on trellises outside of and trailing onto the houses, and along the village paths. Since they are trained to climb up trellises, they are not cut back like the Riffian grapes, but are allowed to grow as long as they will, for purposes of shade.

Cactus. The one species of cactus found in the Rif, the prickly pear variety, is called by its Arabic name, *karamus en Nsara*, or the Christian fig. It is found along the seacoast, in the eastern tribes up to Beni Tuzin and Gzennaya, and in the southern part of Gzennaya. It is absent in northern Gzennaya, in southern Beni Urriaghel, in Beni Amart, and in the Senhaja Sghir. Where it is grown it serves as a convenient fence about the house, and as a supply of mediocre food in time of famine. Women and young girls pick its fruit, remove the needles, and sell it in market at a low price.

Garden Plants and Care of Gardens. *batata*, the potato. This vegetable is obviously of American origin, although it has been grown for a long time in the Senhaja and central Rif and has become an integral part of the local culture. It is divided into two varieties: the reddish type, the more frequent, and the white type, found chiefly in Beni Amart. The white is considered the older. Potatoes are grown only where there is irrigation, and then usually in terraces.

er khizzu, the carrot. This vegetable, considered to be of Arab introduction, is not favored and is rarely grown.

er bser, the onion. This is planted in the following manner: in March onions are cut in two or more pieces lengthwise and planted; these pieces are allowed to grow big and go to seed, and the seeds are collected and sown in a starting-bed in August; the next year the stalks are cut off and the plants are separated and transplanted.

jifth, the white turnip.

er firfir, the pepper. Peppers are specially treated, being fertilized with goat manure when they begin to flower.

jubshth, a species of small bean.

ibauen ibershanen, black beans.

thakhseshth, a type of vegetable marrow or squash.

thakhseshth n yieri, the gourd, raised for bottles only and not eaten.

Cultivation of Grains and Leguminous Plants. *dra thesdat*, durra, is considered by the Riffians to be of recent introduction from the Negro country. It is grown only by men who have no terraces whereon to grow maize (*dra*), since it can be grown dry. It is not greatly valued and is not commonly grown.

shinti, rye,[1] is grown without irrigation on the mountain slopes where the land, too steep for ploughing, may be worked with the hoe. It may be grown on land which does not belong to the farmer, beyond the reaches of ordinary agriculture, and hence is an important source of food supply for families owning insufficient arable land. The Riffians prize rye highly, considering it rich in food value and a strength producer. Since the Arabs ridicule them for eating it, the Riffians seldom discuss the subject with strangers, or produce food made from

[1] Samples of *shinti* from Gzennaya, now in the Harvard Botanical Museum, have been identified by F. Tracy Hubbard of the Harvard Botany Department as rye. Moulieras mentions *shinti* in his description of the Beni Bu Nsar, calling it "une sorte de blé blanc." Procopius ascribes the cultivation of a grain called ὄλυρα to the mountain Berbers of his time. This grain, identified with the Latin *arinca*, was perhaps rye. Moulieras, *Le Maroc Inconnu*, vol. I, p. 55; Procopius, bk. iv, chap. 6, l. 13; Freund, Latin-English Lexicon; Liddell and Scott's Greek-English Lexicon, unabridged, 1882 edition; Vavilov, *The Origin of Cultivated Plants*, p. 206.

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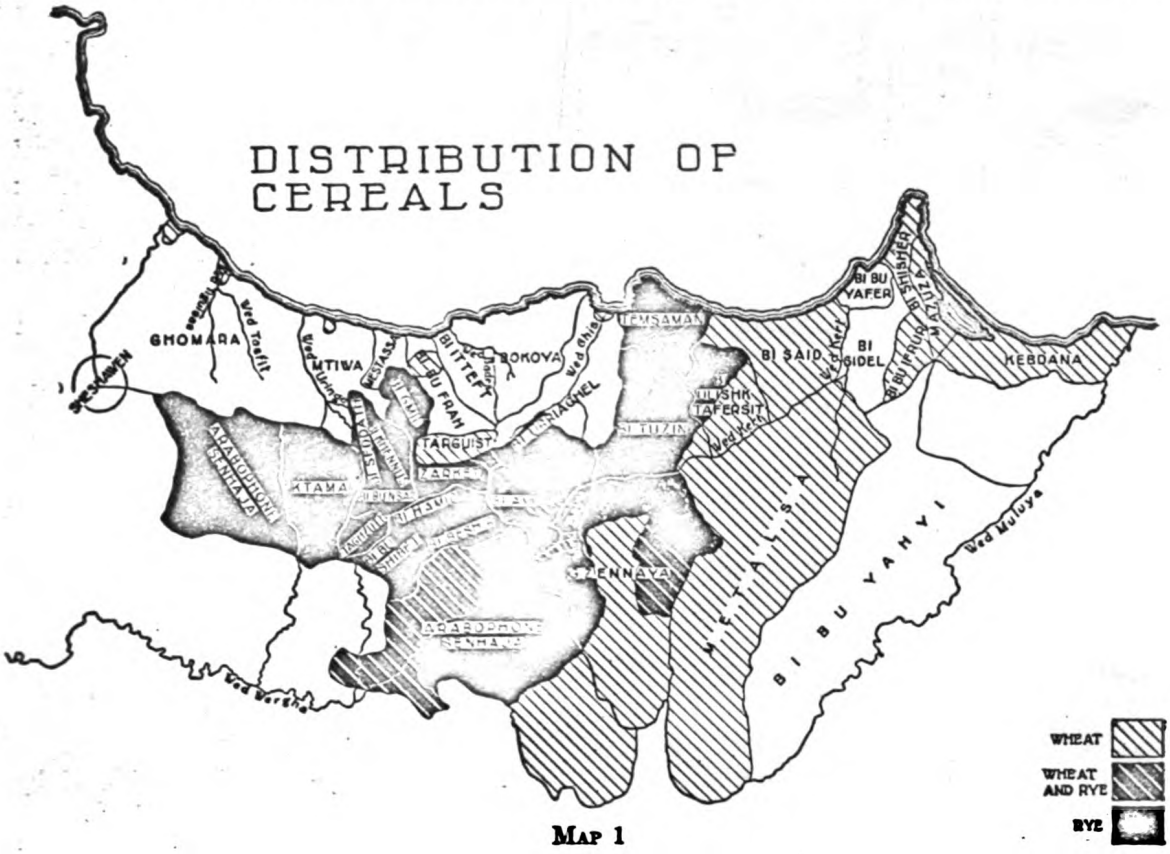
it when guests are present. It is another of the innocuous things of which they are curiously ashamed.

imindhi, barley, is the universal grain, being grown everywhere except in Taghzuth. It is grown on irrigable plough-land, in the regions where irrigation is practised.

erden, wheat, is found only in the east, in the lowlands, and in flat plateau country, notably at Bured and Targuist, where it has recently been introduced. The mountain farmers consider wheat extravagant and low in food value, while the lowlanders think it the only aristocratic cereal. The distribution map for rye and wheat shows clearly the relative



MAP 1

ranges of these cereals, both being largely regulated by environmental zones. I have not depicted the range of barley, since it is found wherever grain is grown except in Taghzuth.

er ḳortar, oats, are not cultivated in the Rif, but grow wild, and are sometimes gathered and eaten.

shasana is a leguminous plant resembling vetch, the English name of which, if any exists, I do not know.[1] It is grown in the same manner as peas and lentils. These leguminous plants are considered by the Riffians to belong with grains rather than with vegetables, hence I have followed the native usage in considering them in this place. *Shasana* is said to be poisonous when eaten without treatment. Like acorns, the *shasana* is placed in a basketry container and allowed to rest in the bottom of a stream, weighted down with stones,

[1] Specimens brought to the Harvard Botany Department are being studied.

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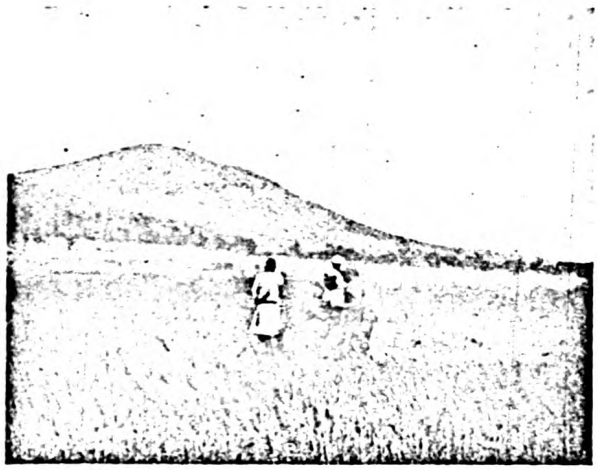
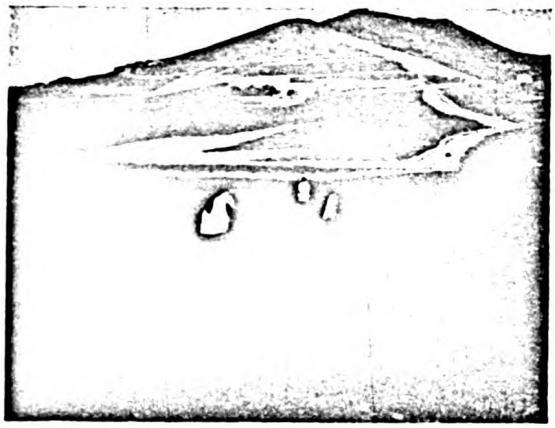
AGRICULTURE 2



Reaping, Targuist

Tying the sheaves, Beni Said



Gleaners, Beni Said

Threshing with mules, Targuist

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for several weeks. At the end of this time the poison is supposed to be washed out, and the product is dried and eaten.

thinifin, peas, *ibauen*, broad beans, and *er athis*, lentils, like *shasana*, are grown as grains.

The Calendric Cycle of Agricultural Events. Agriculture in the Rif and in the Senhaja country is conducted on the basis of the old Roman calendar, the names of the months surviving in a form very little altered from its original character. I was unable to transcribe these names exactly since I could find no one who knew them accurately and was willing to reveal them. Knowledge of them is confined to the *fkih*, the preceptor or religious head of each group of villages, and to his students. The *fkih*, while delivering sermons at the mosque on Fridays, reveals the agricultural program for the following week and tells the farmers just what activities the season merits. To reveal this calendar system and the agricultural annotations which go with it would be to relinquish a portion of the awe in which the religious leader is held.

The preceptor likewise knows the Arabic lunar calendar and is the only one able to tell when religious feasts of Arab origin are due. The farmers reckon only by the four seasons, a solar conception which may well antedate either the Roman or the Arabic system. They know, however, about when each activity is due, since they are in the habit of repeating the program every year, and could probably get along as well without the learned assistance of the *fkih* as with it.

A rough outline of the year's activities follows.

January. In this month the farmers plough their land. (See plate 9.) When this has been finished they sow barley and *shasana*, and later broad beans and lentils.

February. If the bean and lentil sowing has not been finished in January, it continues over into early February. Sometimes it continues until the end of the month.

March. About the first of March the farmers hoe the mountain slopes and sow rye and peas.

April. On the first of April they commence planting the vegetable gardens with potatoes, beans, carrots, turnips, onions, and peppers.

May. This is the month for trees. The farmers dig around the roots, fertilize them with manure, and water them. After the trees have been cared for in this way and pruned, the soil about the grapevines is loosened and fertilized with manure, without water. At this time the grapevines are also pruned.

June. Toward the beginning of June, or sometimes during the last week of May, the farmers reap the *shasana*, lentils, barley, and peas, in the order named. The barley is cut with sickles; the others are pulled up by the roots and laid aside for threshing. After this has been done the farmers irrigate the terraces in which the *shasana*, lentils, peas, and barley have been growing (see plate 9) and plant them with maize. The plants previously reaped are then threshed, first the *shasana*, which is the most susceptible to insect pests and cannot wait, then the lentils and peas, and finally the barley. All this threshing is done with cattle, donkeys, or mules, which are forced to trot around a circular threshing floor. (See plates 10 and 11.) Toward the last of June the rye is cut, and the women thresh it by hitting the heads of the sheaves against sticks held in the hand. It is tabu to thresh rye with cattle, just as rye is never planted by means of domestic animals or the plough. The whole rye complex seems to antedate or at least to be negatively associated with the cattle and plough complex.

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July. In July, forty-five days after having planted the maize, the farmers reap it, fertilize and water the terraces, and set out the second crop. This second maize is a different variety from the first, and grows more rapidly. After it has ripened it is left in the ground until December or January, when it is removed in time for the next season's ploughing. Towards the end of July the almonds and walnuts are picked and stored away.

August. About the first of August, after the second crop of maize has been planted and the almonds and walnuts picked, the farmers gather the turnips, potatoes, and small beans, planting in their stead more potatoes, more turnips, and black beans. They likewise set the onion seed out in beds, and after the shoots arrive cover them with manure and branches to keep them warm during the winter. Toward the last of August the late figs are picked, split, and set to dry. Figs intended for sale rather than for local consumption are not split, but are spitted on sticks of wood. At this time the farmers also pick pomegranates and carob beans.

September. September is the grape season. Whole families repair to the precipitous vineyards with baskets to pick, sleeping in the vineyards at night, and feasting and playing games. This is the season of festival, and likewise the time when weddings take place. At this time, when the families are sleeping in the vineyards, raw garlic is eaten plentifully, since this is the only time of year in which people do not live in the house, and it is considered shameful to have an odor of garlic about the house. After the grapes have been picked the women gather the root called *fathis*, which they burn. The ashes, mixed with water, are used to wash the grapes before these are set out to dry. Grapes washed in this way are said to dry more rapidly, not to rot, and to form better raisins.

October. Toward the end of October the olives are picked and stored away packed in salt until the farmers find leisure in which to grind them. Olives can be kept two years in storage without detriment.

November. In November the farmers graft trees, using beeswax in the process just as it is used among modern farmers. They tie the waxed joints with cloths, which they leave on until the following spring. In October and November the men cut wood and brush for their fires, enough to last them through the winter. The women and children help them to bring this wood in on their backs.

December. Toward the end of this month and in early January, those farmers who possess orange trees pick the fruit. Some of it is eaten, but much is sent to Fez to be sold. During the winter months, when it is stormy outside and farming is ended, the men sit inside the house working with wood, fashioning spoons, hoe-handles, and ploughs, and do what repairing is necessary upon their houses.

This calendar of events keeps the Riffian farmers very busy most of the time, and as a rule they are most industrious and energetic workers.

In the regions where there is no terraced irrigation (left white upon map 2[1]) only one crop of maize is grown, and but one crop of vegetables. This is compensated for by the relatively greater abundance of arable land in the east and other low-lying districts. The mountain people depend to a great extent upon vegetables, especially the leguminous varieties, and dried fruits and nuts, while the lowlanders go in more extensively for wheat and barley.

[1] See p. 52.

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Tools and Machinery Employed in Agriculture. *ariyzim*, the hoe, or mattock, is the fundamental Riffian agricultural implement. It is made by local blacksmiths and resembles the hoe used all over North Africa and far into the Negro country. The present hoes are hafted in the normal European fashion, but there is some reason to believe that they formerly were socketed. The only difference between a hoe and an adze is that the adze is smaller, more delicate, and has a steel blade welded into the cutting edge. The distribution of the hoe is universal.

amzhar, the sickle, is of ordinary European shape and type, and is made locally by smiths. It is hafted by a tang. The distribution is universal.

er hathitha, the reaping hook, is a short sturdy knifeblade, hooked around to form a right angle about two inches from the end. It is tanged and hafted into a wooden handle.

asghar, the plough, is typical and almost as widespread as the hoe; this is a composite implement, made, except for the iron share, wholly by means of the adze, and by the farmers themselves rather than by carpenters. Any farmer who shows himself proficient in this art may be called upon to make ploughs for his neighbors, but he cannot or does not accept money for this, on account of the sacred quality of the plough. The parts comprising this implement are as follows:

zegru, the body of the yoke, a double curved piece of wood which sets across the necks of the two oxen drawing the plough.

thighenayin, the hames, two U-shaped pins, one at either side of the *zegru*, passing under the necks of the oxen and fastened through holes in the *zegru*.

ashbiu, a piece of leather nailed onto the centre of the *zegru* to hold the hooked end of the plough-pole in place and keep it from slipping.

thazhbat, the wooden peg set in the end of the pole of the plough itself. This peg fits over the middle of the yoke and is held in place by the leather *ashbiu*.

athemun, the long pole of the plough at its rear end set into the body of the plough and at its front end hooked onto the yoke by means of the *thazhbat*.

siri n wusghar, the main body of the plough, a thick curved piece of wood, so hewn that its back rises to form a handle and its front is the part to which the share is attached. The *athemun* is set into the middle of the *siri*.

thafarot n wusghar, a stout wooden peg running vertically, mortised into the *siri* and running entirely through the *athemun*. This prop serves to keep the *athemun* and the *siri* tightly in position.

imzoghen n wusghar, the ears of the plough, two triangular pieces of wood set into the sides of the *siri* just back of the share.

thayasa, the iron ploughshare, made by local blacksmiths. This share is made from a flat piece of iron hammered over at the edges so as to form a socket, which fits over the pointed end of the *siri*.

The *siri* and *thazhbat* must be made of oak; the *athemun* may be made of oak or of cedar; the *thafarot* may be made either of oak or of almond wood; and the *imzoghen*, which need not be very strong, may be made of any available kind of wood.

These are the indispensable elements of the plough.[1] The type just described is found with no important variations all over the area in question, with two exceptions: the sterile

[1] An excellent and exhaustive treatise on Moroccan plough types will be found in Laoust, pp. 275–290.

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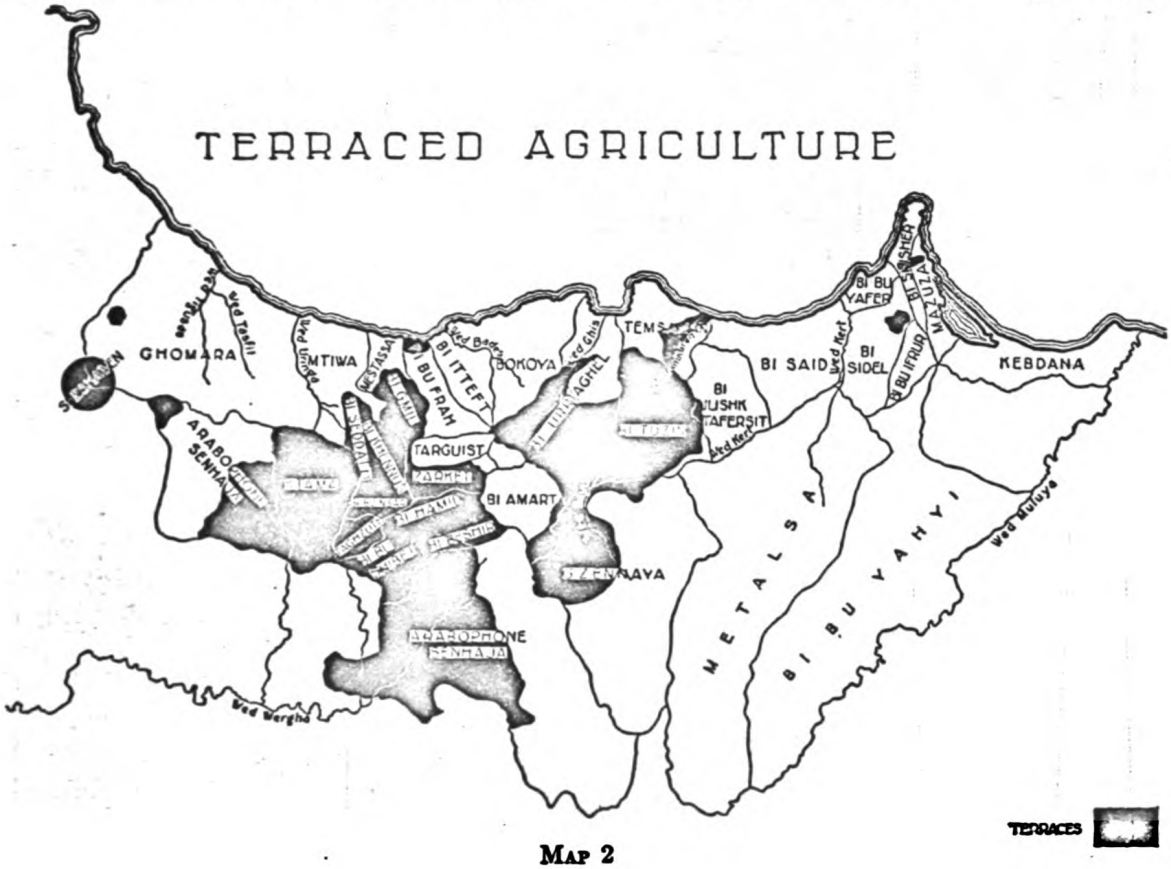
portion of Beni Bu Yahyi, where no agriculture is practised, and parts of Ktama, where wheat and barley are not or cannot be grown.

thasath n waman, the turbine grain mill. This type of mill, a complicated mechanical invention, consists of a small house built over a dam or over the end of a high-flowing irrigation ditch, a turbine wheel with tilted paddle-shaped blades set into a thick terminal hub, a circular stone attached to the upper end of the turbine shaft inside of the house and resting on the nether stone, and a hopper hanging above the stone with a feed-slot jiggled by the upper stone so as to insure the flow of grain from the hopper. The hole in the upper stone



MAP 2

into which the shaft is set is off-centre, and the upper part of the shaft is bent to allow for this, so that the upper stone turns fairly evenly on its axis, while a second hole, drilled through the exact centre of the upper stone, does not deviate from the centre and allows the grain falling from the hopper to be ground between the two stones. The lower stone is larger than the upper and is rimmed with a slightly raised border, broken only in one place, so that the flour may be extracted from the gap in the rim. This type of mill seems to be concentrated at Taghzuth, where many of them are in constant use. There are several in Beni Bu Nsar and five or six in Beni Aissi of Ktama; there was formerly one in Wed Iherrushen of the Gzennaya; and there are about ten at Ajdir. At Fez many of these mills are in use, and they are also found in the Atlas, particularly at Zerekten.[1]

[1] For a detailed description of this type of mill consult Laoust, pp. 36–48, and Baron Nopsca's *Bauten, Trachten, Geräte Nordalbaniens*, pp. 131–134.

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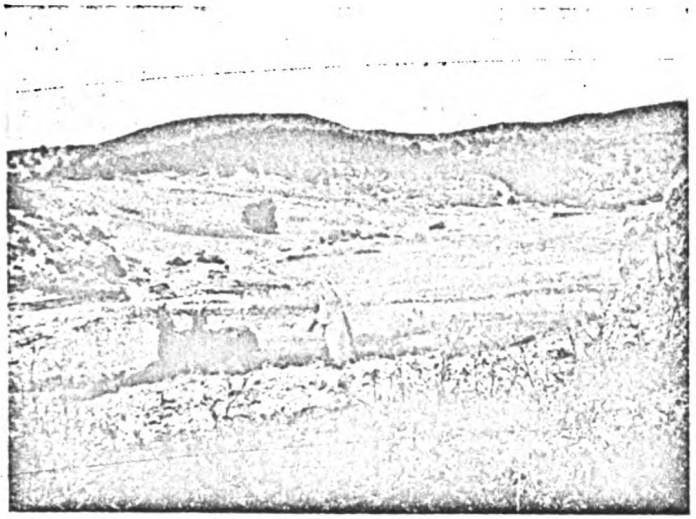
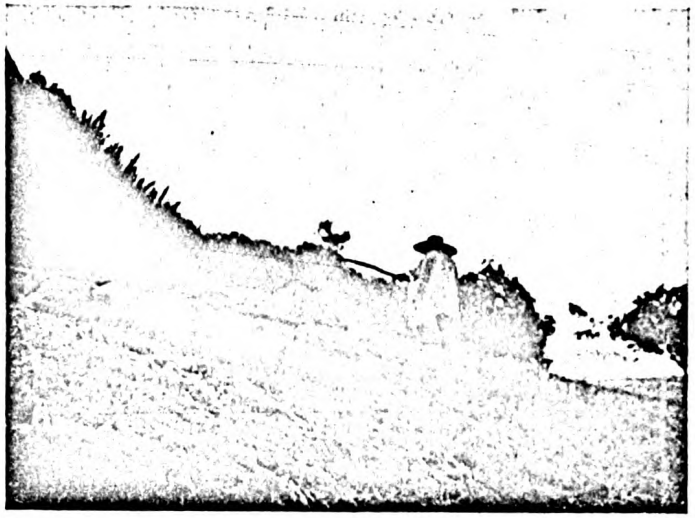
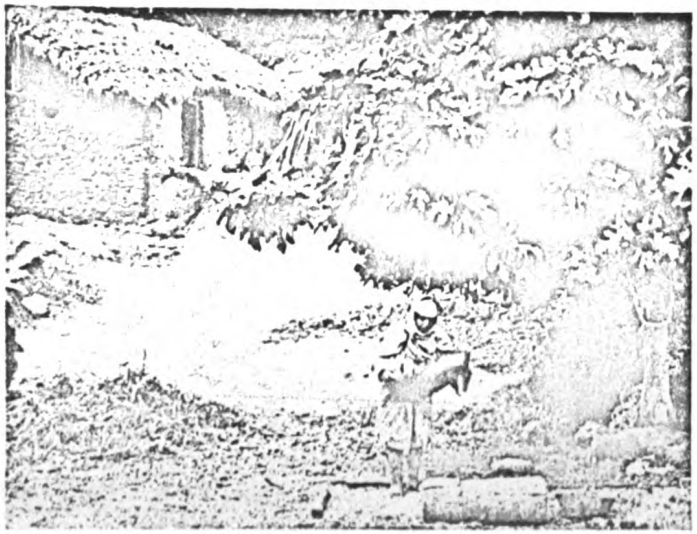
AGRICULTURE 3



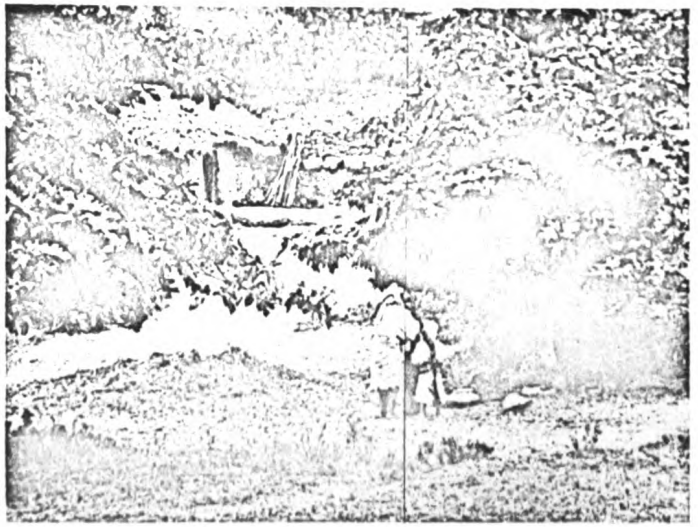
Threshing with mules, Tiguisas, Ghomara



Winnowing, Tiguisas, Ghomara



Husking grain in a mortar, Tiguisas, Ghomara



Winnowing out the husks, Tiguisas, Ghomara

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thasath, the ordinary hand mill, consists of two stones, an upper and a nether, as in the water mill (singular *agharf*, plural *igharfawn*). The upper is set crookedly on an axis fastened into the lower, and a hole through the middle receives the grain poured into it by hand. The upper stone is rotated by a wooden handle set in its side. This hand mill is distributed throughout Morocco and the Mediterranean area in general.

thahont, the olive grinder, is made of a concave platform, circular in shape, about six to eight feet in diameter, and two or three feet high, its surface covered when possible with slabs of slate. In the middle of it is set an upright pole, which rotates in its socket. Through the pole is set a log handle, which goes through a millstone set on edge and reaches several feet over the lip of the platform. Olives are put in the platform, and the wheelstone is turned by men or animals pushing or pulling on the handle. (See plate 12.)

azekor, the oil press, is the second machine necessary in the manufacture of olive oil. The mashed pulp of the olives, taken out of the grinder, is put in low circular baskets with constricted necks. These are then pressed in a machine constructed as follows. A heavy log is set at one end into the side of a hill or into a pile of rocks, so that it is pivoted rather than firmly attached. The other end, upheld by a wooden screw, is prevented from slipping sidewise by two upright logs set in the ground as guides. The screw, equipped with a handle, does not mesh directly with the heavy log, since if it did so the change in the direction of the log during the descent would jam and possibly break the screw. For this reason the screw passes through a large hole in the log and meshes with a smaller piece of hard wood, pegged, with considerable allowance for play, to the log beneath it. The descent of the heavy log is thus regulated by the turning of the screw: if it is turned one way, the log descends; if the other, the log rises. A block of wood is placed between the screw and the fulcrum of the lever, so as to get the maximum pressure. Under the log are set superimposed baskets of olive mash, and the block thus serves to transmit the weight of the log to the baskets. As the log is screwed down, the oil is squeezed out of the mash and flows through the meshes of the baskets, to fall into a wooden or pottery container at the foot of the stone on which the baskets are set. The parts of the oil press are as follows:

thahont, the olive-crushing machine, complete, also the stone wheel.
amghir, the sticks in it, both the upright axis and the horizontal handle.
er hawuth, the grinding table.
azekor the pressing machine, entire, also the log weight above.
azthi, the screw.
aharush, the log which transmits the pressure from the weight to the baskets, so-called from its resemblance to a mortar.

The olive press, including both component machines, is found in every tribe excepting Metalsa and Beni Bu Yahyi. In the Branes and Marnissa is found a variant type of press, in which there are two screws, and the weight-log, the *azekor*, is not heavy, the machine thus depending for its pressure upon the constriction of the screws, which are operated from above.[1]

targa, the irrigation ditch. (See plate 9.) Irrigation ditches are led from springs and streams along the sides of valleys at a slope less than that of the streams themselves. Their

[1] Laoust (pp. 451–460) describes the variant forms of this machinery in other parts of Morocco. Baron Nopsca (p. 137) also gives a description of the same thing in Albania. Like the turbine mill, this apparatus enjoys a wide distribution in the Mediterranean area.

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construction requires a great amount of skill. Where the sides of the valley are precipitous and rocky, the ditches are led around through olive logs hollowed out with the adze and supported by long wooden props; at times ditches are led even from one side of the valley to the other by means of these olive-wood troughs. The distribution of the *targa* coincides with that of *tikerathin*, or terraces, except in the lowland alluvial plains of Ajdir, Tiguisas, and other Mediterranean deltas, where irrigation is carried on without terraces. Irrigation is locally supposed to have been invented by the men of Iherrushen and Ikhuanen in the northern Gzennaya, and expert *targa* makers from these places are sent for to construct and repair ditches all over the Rif.

hassi, the well. Wells are constructed by itinerant craftsmen from the region of the Draa, who wander about throughout the Rif seeking employment. They are never molested, since they are considered benefactors of mankind, and are paid well for their work. These men generally earn as much as twenty dollars for the construction of an average well, and find employment chiefly in flat arid country where there are no springs and where wells are a necessity.

Communism in Agriculture. The Riffians, living as they do close to the soil and often not distantly removed from the prospect of starvation, have developed several social devices whereby the poor may be prevented from perishing and the rich compelled partially to support them. These charitable practices are so ingrained that no one able to act as a benefactor to the poor would venture to criticize them in public or refuse to take part in them. They concern the three vegetable products which seem most deeply entwined with Riffian life: rye, grapes, and olives.

When a man wishes to sow rye on a mountain slope, he invites as many men as wish to do so to help him. Most men who have nothing else of importance to do accept the offer, and no one refuses without an adequate excuse. In this way a man of moderate means is assured of a plentiful crop of rye, to make up for his lack of other foodstuffs.

The crew works diligently from sunrise to sunset, after which they climb downhill to the house of the owner of the rye. The latter's womenfolk have meanwhile busied themselves preparing as ample a meal for the workers as the family's means will allow, and all eat and spend the evening together. If the family cannot provide very abundant rations, the workers seldom complain, since they consider their participation in the work as a form of charity, and their partaking of the food as a social gratification to the providers of it.

Similarly, in reaping season, anyone who wishes may come unbidden and help gather in the grain, whether it be rye, barley, or wheat, and is assured of an adequate meal at the end of the day in payment. In this way people who have finished their own work may be fed without drawing on their own supplies. Gleaning is left to the poor of the village.

If two farmers who own adjoining fields or terraces possess each but a single cow, they yoke these together and plough their land in common. No family is without a cow, and since ploughs are constructed by the farmers themselves, or by neighbors especially adept at the art, without payment, the situation of a man with land and no cow or plough does not arise.

Irrigation ditches which water the tillage of more than one man are subject to communal care. Each farmer is assigned a definite amount of water during each season when it is required, the amount depending on the amount of land requiring irrigation. The water is measured by days and half-days. Each season the farmer must send out a man for every

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AGRICULTURE 4

Thahont of Ikaroen, Gzennaya, showing grinding table clearly

Crushing olives with *thahont*, Tezarin, Taghzuth

Pressing out oil with the *azekor*, Tezarin, Taghzuth

Closer view of same *azekor*

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day's water he receives, to work a day repairing the system after the heavy rains. Farmers who have each but a half-day's water pair off and draw lots to see which will work, since no one is allowed to work half a day only.

At the arrival of the grape-picking season, all the poor families who have no vines and the rich landowners who have many, assemble in the village mosque, on a Sunday, chosen for this occasion because it is considered a lucky day for grapes and supposed to be immune from thunderstorms. Before this date no one may pick grapes. The local administrative council, which has summoned the families now present before it, assigns to each rich family a poor one, all members of which are to help the vine owners. The aides thus chosen assist the others in picking their grapes, washing them in *fathis* ash and water, and in setting them out to dry. No group may begin picking until all assignments have been made. After the work is done and the raisins have been dried, the rich family gives its helpers a generous quantity of the raisins. There is no set rule dictating how much shall be given, but the families benefiting from this form of charity seldom have cause to complain. If after the allotment of families there are some poor ones still remaining, the council sets them to work picking the grapes which are the property of the local mosque or saint's tomb. The workers who pick and cure these grapes are given a fourth of the product,

All the olive trees in a village, although owned by a number of different individuals and by the mosque or by a saint's tomb, are located together on the banks of the nearest stream, below the lowest terrace. The shaded area beneath the trees is a place for various types of gatherings, one of which is directly concerned with the trees themselves. When the olives are ripening and windfalls begin to collect on the ground beneath the trees, the administrative council sets the first Friday of this season as the official day for gathering them. Early in the morning most of the families, especially the poor ones, come to the olive grove and await the arrival of the council members. The latter give the signal to start, upon which the people rush under the trees and gather up the windfalls. They are not allowed to touch any olives on the trees or to start before the signal is given.

Each olive tree owner's name is written on a list in the possession of the *adl*, an officer comparable to a town clerk. A farmer is allowed to use the grinder and press, which are communally owned, only when his turn has come around. He may employ it only for a certain number of days, depending on the amount of olives his trees are capable of producing. In this way he is prevented from idling or wasting his time at the press. During the time he is there, he is required to give one cup of oil each day to each of the following:

1. The *fkih*, who keeps half of it for his personal use and saves the rest for the lamp in the mosque. This is called the cup of the mosque.
2. The *mokaddem*, or caretaker, of the mosque, who collects a cup to be sold or stored, the proceeds to be reserved for hospitality, cartridges for the village, and fines imposed upon the whole village. This is called the cup of the grinding wheel.
3. The students in the local primary school, who collect a cup which they sell or consume as food. This is called the cup of the students.
4. If there is a saint's tomb in the territory of the village, a fourth cup must be given it for its lamp.

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Any oil remaining over the three or four cups so given is the property of the man who has pressed it, unless a poor man without trees comes to the press and asks for some. Such demands cannot be refused and each suppliant must be given a cup.

Besides charitable assistance and work done in anticipation of remunerative charity, there are two types of definite agricultural contract by which one man who has not enough land to support himself and his family may acquire sufficient provender to last his household through the winter. The first is that by which a poor man binds himself to assist a richer farmer in all agricultural tasks in which he may engage. In return for this he receives a fifth of the total grain crop, a fourth of the leguminous plants and vegetables harvested, a third of the product of the fruit, olive, and nut trees, and a third of the grapes.

The rich farmer hires these share-laborers (who are called *akhemes*,[1] plural *ikhemesen* or "fifths," because of their return in grain) because he is not able to care for all of his land himself, owing to its extensive size. If the property of a rich farmer is so extensive that he is unable to cultivate it with the aid of one share-laborer, he will hire two, and these will split a fifth, a fourth, and a third of the various types of produce. No matter how many men a farmer employs he never gives more than the stipulated fractions, which are equally divided among the workers.

When a man owns property which he has no intention of working himself, he can rent it out in return for one half of the produce. This type of contract is used by the Beni Bu Yahyi in renting out the northerly portions of their territory to farmers who come down from Galiya to work the land, the Beni Bu Yahyi not being as interested in agriculture.

The share-laborer is often a stranger in the village of his employment, having left his home through shame of having his poverty advertised in his own village, or more often through fear of punishment for some crime. The migrations of these share-laborers has done more to cause infiltrations of blood from tribe to tribe than any other factor, since the immigrant usually marries into the group of his adoption.

Wealth is not a stable thing in the Rif, any more than it is in more modern types of society. Despite charitable practices and opportunities for outside work, many families find themselves on the verge of starvation in or near January and February, and are willing to sell anything within reason to obtain enough food to last them until the next harvest. Others, more industrious, who have worked their land to its limit and spent the rest of their time helping others for pay, may have more food than they require and be willing to sell some of it, at a premium. They generally demand land in payment. Working this land to its limit the following year, they may pile up an even greater surplus than before, and thus before many years may become large landowners and relatively rich men, ready, in their turn, to hire as share-laborers the people from whom they bought the land.

Thus the retention of property depends upon whether or not it is worked diligently, and positions of wealth may be reversed in less than a generation.

FOOD PREPARATION AND EATING

The different types of food, including their methods of preparation, may be classified as follows: (1) cereal preparations antedating bread, (2) bread and breadmaking, (3) preparation of vegetable products alone, (4) dishes containing meat, (5) fish, (6) eggs, (7) milk and

[1] The feminine form of this word signifies a political division. See p. 92.

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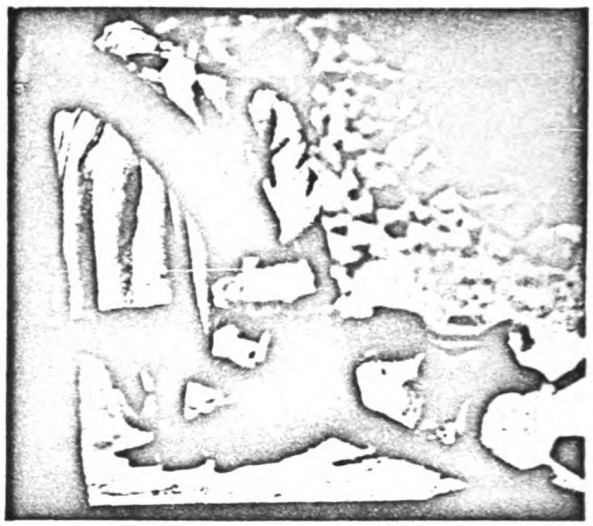
FOOD PREPARATION 1

Preparing flour for bread-making, Teririn, Taghzuth



Grinding flour in a hand-mill, Tiguisas, Ghomara

Frying bread in an earthen skillet, Tiguisas, Ghomara

Typical bake-oven, Ulad Abekar, Taghzuth

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FOOD PREPARATION 2

Choosing a fat goat for supper, Tiguisas, Ghomara

Broiling goat-meat *kebabs* over a brazier

Eating the *kebabs*

Chopping up *kif*, Tiguisas, Ghomara

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milk products, and (8) intoxicants and narcotics. To these topics may be added that of table manners.

Cereal Preparations antedating Bread. In Procopius we are told that the chief food of the mountain Berbers of Algeria consisted of roasted grains, eaten as such and without being made into bread;[1] and early accounts of the Canary Islands describe the Guanches as eating habitually a food called *goffio*, made from roasted barley.[2] This type of food, which the Riffians believe to have antedated bread, is still eaten in the more remote mountain sections of the Rif and Senhaja. The various kinds of food so prepared are as follows:

zimbu, barley or maize, is roasted in an oven or pan, ground in a stone mill (see plate 13), mixed with melted butter, and rolled into balls. These balls of *zimbu* are given children as a delicacy or as a snack between meals. They are likewise taken into battle as emergency rations and carried on long journeys.

tha' asat is maize roasted in the same way as is *zimbu*, then mixed with raisins and either almonds or walnuts, depending on which sex is to eat it. The whole is put into a grain pestle and crushed and mixed together; melted butter is poured through it, and the compressed cake taken out of the pestle and allowed to dry, a process during which it becomes very hard. This makes a compact lasting food, eminently suited for pilgrimages and other long journeys and for war. The maize used in *zimbu* and *tha'asat* is especially chosen so that in roasting it will burst open (like American popcorn).

imshiken, rye, is boiled in water until thoroughly cooked and swollen, then the water is drained off, butter is added, and the dish is ready to eat. It closely resembles oatmeal porridge and other cooked cereals commonly eaten in this country.

thighwawin, barley, is roasted, then husked in a pestle until the skins come off. It is eaten dry in time of war or of great emergency.

iuwzan, barley, is broken coarsely so that four or five pieces result from each grain. It is thrown into a pot of boiling water and cooked until swollen, then eaten with a spoon, like boiled rice.

These primitive methods of preparing grains for consumption are restricted to-day to a limited area, although traditionally all the inhabitants of the region formerly employed them. They are always found in association as a definite complex in the mountain sections of Beni Urriaghel, Beni Amart, Temjunt, Iherrushen, Ikhuanen, and Iherrassen of the Gzennaya, all of the Senhaja Sghir, and the Western Arabophone Sehaja.

Bread and Breadmaking. *agharum*, bread, is made from an incredibly large number of different materials. These are wheat, barley, rye, wild oats, maize in combination with some other cereal, durra (of recent introduction), acorns, dried *sasanu* and barley flour, *iyarni*, a wild tuber, *kirsana*, *ashtar*, another wild tuber, and the seeds from the pod of the *tuzzelt*. There is a tradition, probably unfounded, that the ground pits of olives left after pressing are also utilized.

The grain is usually ground fresh for each baking. The first process is to mix warm water with the yeasty dough left over from the previous day's baking. Yeast is kept by holding over a bit of dough each day and mixing it in this way. If one's yeast gives out, a neighbor will supply more. Few housewives attempt to start yeast, which is considered a very difficult task. It is said that it can be done, however, by using the mother from vinegar,

[1] Procopius, bk. iv, chap. 6, l. 13.

[2] E. A. Hooton, *The Early Inhabitants of the Canary Islands*, p. 69.

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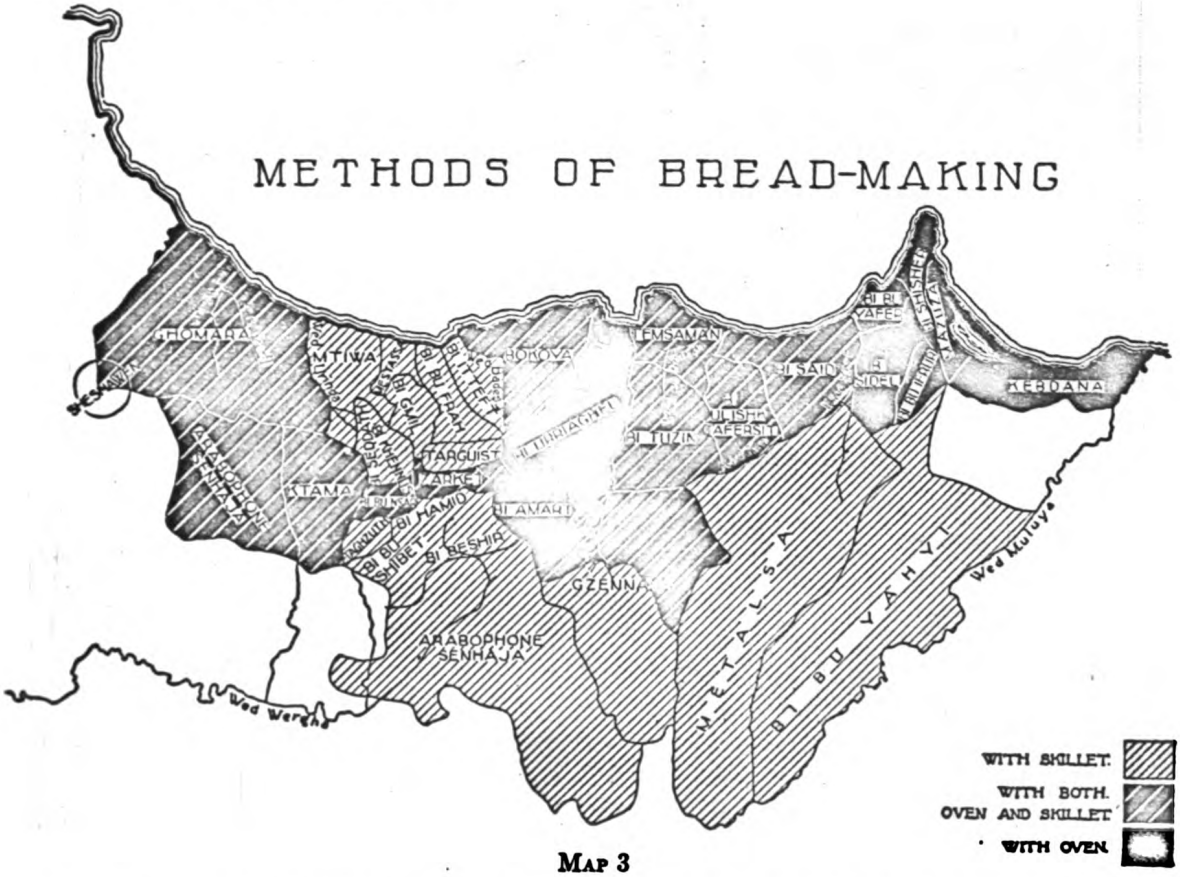
and lemon juice. After the yeasty dough has been thoroughly diluted in warm water, flour is mixed in, and the resultant dough patted into disc-like loaves. These are piled one on top of the other and allowed to rise until the bubbles start bursting open, and then are thrust into a hot oven, from which the glowing embers of a hot juniper or other brush fire have just been drawn.

The Riffians say that the women of the Senhaja Sghir do not allow their bread to rise as long as do Riffian women, and that the resultant product is not as good. Personally, I found the bread in both places excellent.



MAP 3

It is said that nineteen or twenty loaves of bread can be made from a *mudd* of barley, twenty-four from a *mudd* of wheat, and thirty-two from a *mudd* of rye. In this way rye, although it reproduces less grain than the others, compensates in the final product. A *mudd* is a common Moroccan measure.[1]

Bread is highly prized, due to its scarcity, in the Senhaja Sghir, and in Ktama is eaten only on memorable occasions. Although the usual shape of bread in the Rif, as well as in all Morocco, is discoidal, the Galiya and Kebdana women make long narrow loaves, like French bread. Besides the ordinary bread which has just been described, several types of unleavened bread and pancakes are commonly made:

aftheir, dough, is prepared without yeast, and fried on an earthen skillet.

[1] See p. 113, n. 3.

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tarid, a similar loaf, made with wheat bread and sugar. This is considered to be a recent Arab introduction.

ḫarteta, pancakes, are made from a thin batter, full of ground pepper, dropped on a hot skillet.

Bread is baked in an oven called *thinurth* (see plate 13), whereas *aftheir*, *tarid*, and *ḫarteta* are prepared on an earthen skillet called *nkhadam* and attributed to the Arabs. (See plate 13.) Of the bake-oven and the skillet, the former is unquestionably the older and more characteristic in the Rif. It is found in all the Rif but the maritime tribes, Nomads, Shawia and Imsdurar of Gzennaya, Zarket, Beni Bu Nsar, Beni Seddath, Beni Khennus, Taghzuth, Ktama, Western Arabophone Senhaja, and Ghomara. The clay skillet is distributed throughout the Rif with the exception of Beni Urriaghel, Beni Amart, Telmest, Galiya, and Kebdana.

Preparation of Vegetable Products without Meat. Another important article of diet is *thamarik*, a sort of purée or thick soup, which is made of dried split peas, ground beans, or lentils. When it is made with lentils, cut-up onions are added. The purée is boiled in a little water, the pulse being thrown in after the water has begun to boil. When it is nearly cooked butter or olive oil is added, and the resultant purée is eaten with bread used to scoop it out of the bowl, instead of with spoons. *Thamarik* is considered particularly nutritious and warming, and is eaten mostly in winter when there are no fresh vegetables and on particularly cold days. It is found in every tribe except the Nomads.

The wild greens mentioned under agriculture, gathered and eaten by the women, are boiled and mixed with oil or melted butter.

Peppers and onions are eaten raw by men working in the fields who do not want to take the time to go home to lunch.

Dried figs, apricots, raisins, almonds, and walnuts are eaten at any time, either on the march or in the house. They are taken especially in winter after the grain of the previous harvest has been used up. During years following poor harvests whole villages go for months with no other vegetable food than these dried fruits and nuts, in addition to what wild roots, herbs, and berries they are able to collect in the wilderness.

Acorns are divided into two classes, *rbejuth marjaz*, bitter acorns, and *rbejuth mizirth*, sweet acorns. The latter may be eaten raw, but the former must be crushed and left in a stream, inside a bag, until the water has washed all the bitterness out of them, — the same process as that employed with *shasana*.

Dishes containing Meat. *seksu*, commonly known as kuskus, forms an important article of diet in the Rif, as well as in the rest of North Africa. Briefly, since it has been often described, *seksu* is a composite dish made of coarsely ground flour, moistened and rolled into small balls the size of the head of a glass-headed pin. These balls, or granules, are placed in a container the bottom of which is pierced with small holes and steamed over a pot of boiling water or of stew. The stew, which may be cooked separately, consists of vegetables, especially onions and turnips, and lamb, beef, goat meat, or chicken, butter or oil, and seasoning. The *seksu* is spread out, in a large dish, in the form of a symmetrical hill, and the stew is poured on the top, whence the juicier parts seep into the *seksu*; the chunks of meat and vegetable may be readily reached by the persons enjoying the repast.

Another common dish, distributed throughout North Africa, is called *guaz*, a name which the Riffians have taken over from the Arabs. *Guaz* may be purely vegetable or may

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contain meat. The vegetable *guaz* consists of vegetable marrow, potatoes, onions, and peppers casseroled in a pot with oil. Meat *guaz* consists of the same combination of vegetables, or of as many of them as can be obtained, plus gobbets of any kind of meat — goat, sheep, or beef — or whole chickens. *Guaz* is the dish commonly given to guests, especially Europeans and Arabs.

The *kebab*, a recent innovation, is a series of chunks of meat, preferably mutton or goat, spitted on a length of wire, stick, or on a specially constructed spit. Pieces of fat alternate with the meat, and chopped-up onions and peppers are rubbed into the meat lavishly. The whole is broiled over a charcoal brazier and eaten as soon as it leaves the fire. (See plate 19.) The *kebab* forms an easily prepared and tasty dish, especially convenient for people on the march, who cannot carry pots or other utensils. Although introduced only recently it has had a rapid diffusion throughout the area, and is now known everywhere. An especially prized type of *kebab* is that made from bits of liver wrapped in sweetbreads.

Meat may be preserved for later consumption by two methods, drying in the sun and the manufacture of sausages.

er kadidth, from the Arabic *el kadid*, may be made of any meat commonly eaten, except chicken. Mutton, goat, and beef kadids are common, but the meat most suitable for this form of preservation is the flesh of the wild boar. Until recently pork kadids, resembling in taste ham, shoulder, and bacon, were made throughout the Rif, but through an increasing wave of religious feeling this article of diet is fast disappearing. In the Rif it is found only occasionally, and even then is made and consumed secretly through fear of ridicule. The people of Temjunt and Inhanahan of Gzennaya, as well as the Beni Amart, probably make and consume more of it than any other groups in the Rif. In the Senhaja Sghir it is still manufactured and eaten openly, especially in Ktama, Beni Seddath, Beni Bu Nsar, and Beni Khennus. In Beni Bu Nsar and Taghzuth it is called by another name when Arabs or Riffians are present. The kadid may be eaten dry, like chipped beef, or in a *guaz*. It is made and eaten by everyone in the area excepting the Metalsa and Beni Bu Yahyi.

thimhagzin, sausages, are made from goat meat, beef, and pork. The latter meat is rarely used at present, but was formerly the common sausage material. The meat is chopped up, mixed with fat, salt, peppers, and onions, and packed into intestines, bladders, and stomachs. Sausages are eaten only on the feast of *Ashor*, and occasionally on the *Haggus*. For the former celebration, one sausage is made for each member of the family, its size varying with the size of the person who will eat it. These delicacies are hung in a cluster on a rafter. Sausages are found in the Beni Amart and among the Mountain Urriaghlis.

Fish. This is eaten very rarely in the mountain interior, although it forms a common enough article of diet along the coast. When eaten fresh, there is but one method of preparation — by frying in a skillet, with olive oil or some other fat. Sardines are more commonly eaten than any other kind of fish, and when prepared in this way, with olive oil, are very tasty.

There are two methods of preserving fish, by salting and by baking. Salting is done as soon as the fish are brought up on shore. The product so prepared is carried inland in baskets and sold in markets. (See plate 32.) Sometimes sardines are put in a bake-oven without being cleaned. When baked to a crisp they are set aside for winter consumption. Salted fish are sold inland, but baked fish are intended for the use of fishermen and their families.

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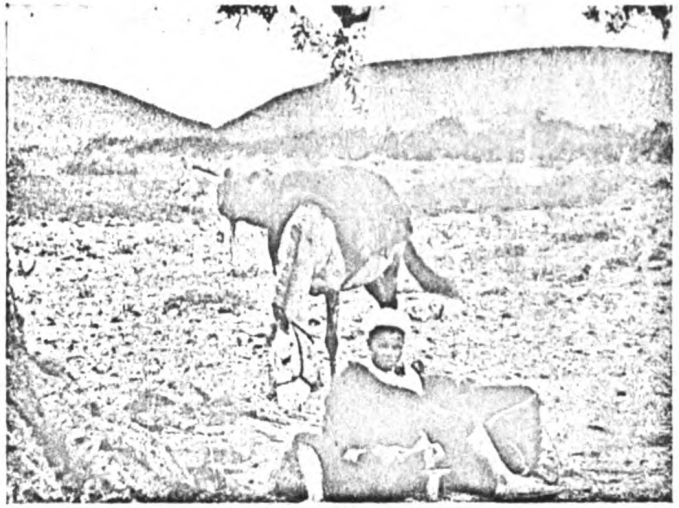
INDUSTRIES 1

Shoeing a mule, Tiguisas, Ghomara



A negroid smith at his portable anvil, Ajdir, Beni Urriaghel

Beni Bu Nsar men with their sawed planks in market, Suk et Tnine, Taghzuth

Taghzuthi carpenter planing a board

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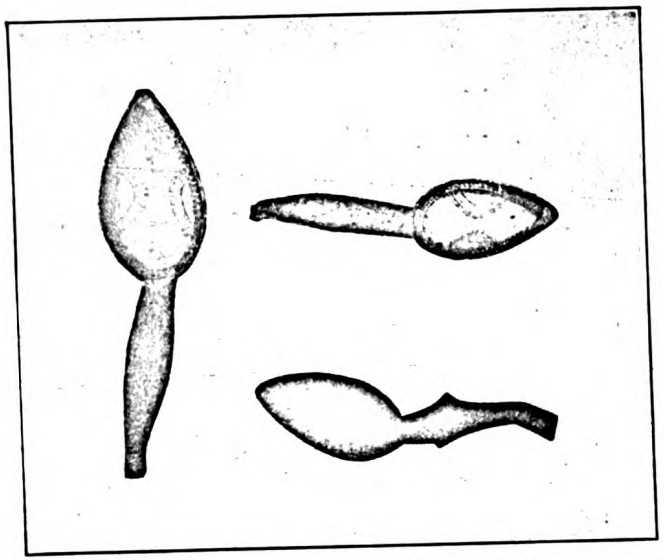
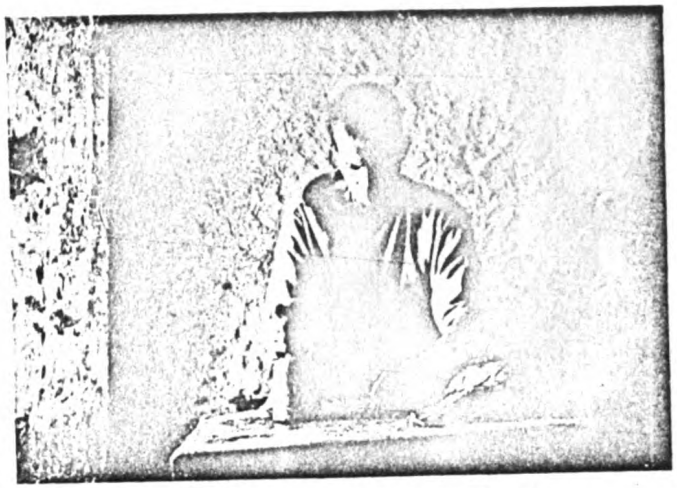


Wooden spoons; left and upper, Galiya, lower right, Gzennaya



Pounding leather, Tezarin, Taghzuth

Cutting a thin strip of colored leather for embroidering, Ulad el Wartith, Taghzuth

Stitching leather cartridge-belts, Ulad el Wartith, Taghzuth

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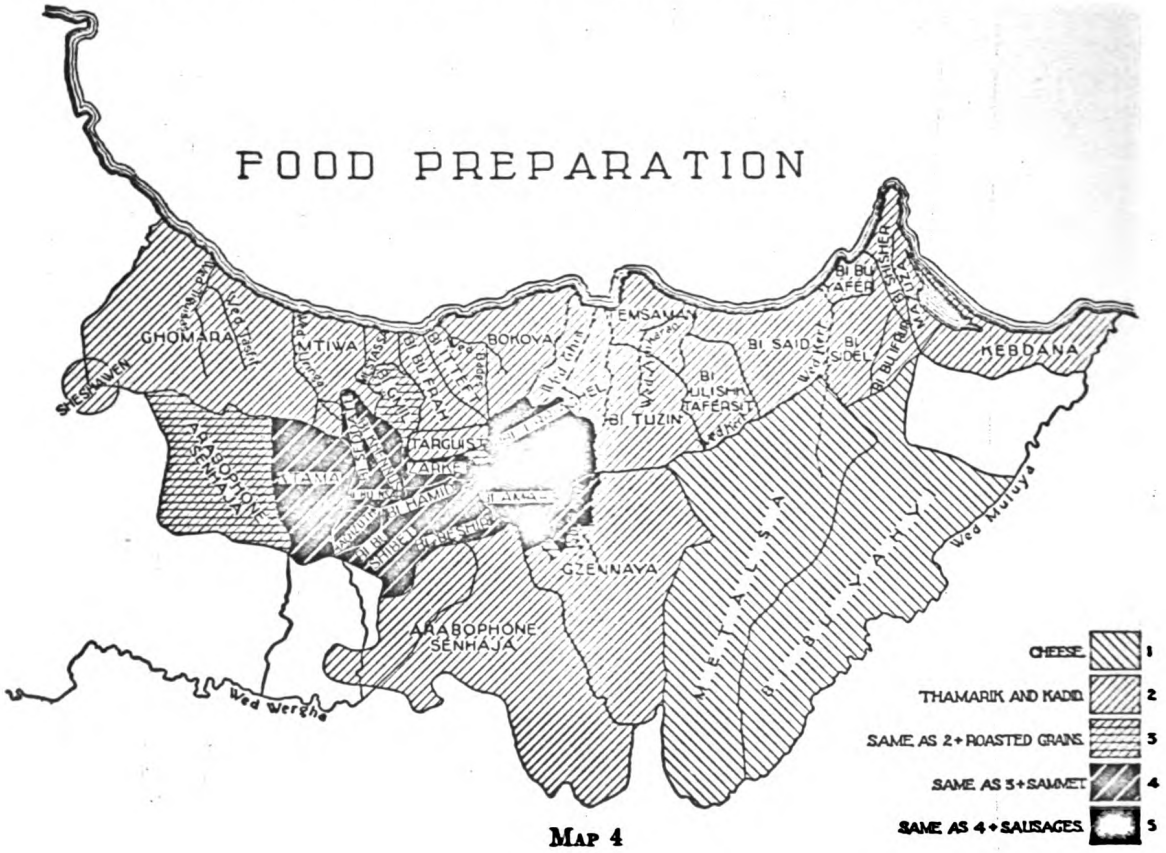
Fish is never boiled or prepared in any way other than those above named. It is never eaten during a meal at which milk is drunk.

Eggs. These are most commonly eaten hard boiled, a number of them in a bowl of melted butter constituting a common dish. They are also made into omelettes, but this latter method is rare and is probably of recent introduction. They are never mixed in bread or in any other composite dish.

Milk and Milk Products. Milk is consumed in a number of different ways. It may be drunk fresh, as it commonly is, especially among the mountain peoples, or may be left to



MAP 4

curdle. The curds, called *aghin*, are drunk out of a communal pot. Butter, called *adhen*, is made by two methods: (1) In the Rif, except in the region of nomadism, cream is put into an earthen pot with a narrow neck and a spout and two handles. Leather lids are tied over the neck and spout, and the pot tied to the rafters by the handles. Here it is swung back and forth until the butter is ready. (2) Among the Metalsa and Beni Bu Yahyi the cream is put into a goatskin, which is tied tight and swung from a wooden tripod until churning is completed.

el kleila (Arabic), cheese, is made only by the Beni Bu Yahyi and Metalsa. It is commonly produced in the form of flat, hard cakes. Being cheese makers, the nomads naturally know the properties of rennet, which they cut from the stomachs of calves; with this and fresh milk they make junket, *jeben*, which they feed to children. The sedentary peoples,

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being ignorant of rennet, use instead the sap squeezed from the ends of fig branches. They claim that this fresh juice will solidify milk.

Intoxicants and Narcotics. *sammet*, grape jelly. An intensive manufacture of grape jelly is carried on in the central Rif and in the Senhaja Sghir, by means of boiling pressed grape juice until it has reached a viscous state. Such of this jelly as has been subjected to a relatively short period of boiling is alcoholic. *Sammet* is put away in jars for winter consumption and is regarded as a delicacy. Distribution is throughout the Senhaja Sghir excepting Beni Gmil and Beni Mesduy, Mountain Urriaghel, Iherrushen, Ikhuanen, and Beni Amart. In Beni Amart it is not made, on account of the absence of grapes, but is imported from Beni Urriaghel and extensively eaten. None of the other tribes who do not make it ever eat it.

Wine-making, which Marmol[1] attributed to the Riffians, is not at present practised except by a few Riffians who have learned the process in Algeria. I was unable to find any tradition of its former manufacture or use. It is, however, made in the Beni Zerwal, a Jeballan tribe a very short distance from our area. Here it is called *khamr*, the Classical Arabic word for wine. It is possible that the Riffians formerly made wine and then gave up the practice. It is likewise possible that they adopted it from first-wave Arabs, whence the Zerwali word, and then gave it up. The Arabs, in the early days of the Caliphate, were not all total abstainers.[2] On the other hand it is hard to imagine a Mediterranean country where grape culture is well organized which was ignorant of wine before the introduction of Islam.

kif, a narcotic, is the ordinary *Cannabis indicus*, a hemp grown in many parts of North Africa as a drug. Although not cultivated in the Rif it is extensively grown in the Ghomara and Western Arabophone Senhaja, as well as throughout the other mountain tribes of northwestern Morocco. Two different parts of the plant are used for smoking, the leaf and the flower, of which the latter is by far the more potent. With it is smoked a harsh variety of tobacco, also grown locally. The mixture is smoked in a small-bowled clay pipe with a wooden stem. (See plate 14.) *Kif* is grown and used in the Ghomara, Western Arabophone Senhaja, and Ktama. Of recent years its use has been spreading eastward, until at present it is commonly used in Taghzuth and other tribes of the Senhaja Sghir. It has not yet become common in the Rif proper, although single individuals, usually travelling hawkers, smoke it secretly.

hashisha. In the Beni Bu Nsar, Ktama, and other tribes in which *sammet* is made and eaten, hemp has been converted into a novel use. It is made into a paste and eaten. In this way an effect greater even than that obtained by smoking it results. Whereas *kif*-smoking is not often indulged in by women, members of that sex eat *hashisha* as freely as do their husbands. The eastward diffusion of these two traits of hemp-using seem to be accompanied by the correlated diffusion of a degradation of woman and by the practice of sodomy. *Hashisha* is distributed as is *kif*, but is also found in Beni Bu Nsar.

Riffian Table Manners. When a Riffian family eats alone, the women and children sit with the men and eat with them. Intimate guests are allowed to eat with the family. When, however, guests of distinction or guests who are not intimately acquainted with the

[1] Chaps. 62, 70, 79, 86–88.

[2] Sir William Muir, *The Early Caliphate*, pp. 143, 184, 207 *sqq.*, 316, 386, 423, 431, 467, 473, 488 *sqq.*, 507 n., 570, 601.

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host are present, food is served them in a room separate from that commonly occupied by the family. The host is present, but does not partake unless urged to do so by the guest. The host's wife appears only to bring in and take out the food, which she does as rapidly and unostentatiously as possible.

In regard to actual table manners, but a few points serve to distinguish the Riffian from the Arab usage. The Riffian washes his hands with hot water and soap and wipes them on a towel before eating, providing he has soap and a towel, otherwise he washes them with water and dries them on whatever piece of cloth will serve the purpose. After eating he rinses his hands and dries them. He does not indulge in the gargling and spitting practised by the Arabs while washing. He does not expectorate on the floor and walls as do Arabs, nor does he belch to show his appreciation of the meal. In the actual technique of eating, however, from the sacramental breaking of bread to the pouring of tea, little difference can be found, except that the Riffians use wooden spoons more and their hands less than do Arabs.

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CHAPTER V

MATERIAL CULTURE (CONTINUED)

METAL WORK

METAL workers may be divided into three classes: ironworkers or blacksmiths, who are subjected to social restrictions, Jews, and gunsmiths.

None of these metal workers know the art of extracting metals from their ores — all the raw material used in the Rif, Senhaja, and Ghomara in recent times has been brought in from outside.[1] Thus, using smelting as the criterion, one might say that these people are not in an age of metal, despite the fact that they use metal tools exclusively. This observation is doubly true when one considers that all the metal workers, except the gunsmiths, are counted as outsiders and immigrants.

The blacksmiths use double bellows of goat-skin bags, which they work up and down with sticks. These bellows, called *tahanut*, must not be confused with the *arrabos*, the bellows of European fireplace type now made in Taghzuth and copied from those made in Meknes and Fez. The blacksmith works over a charcoal fire, quickened by means of these bellows: he heats his metal until it is red hot and then forges it on an anvil, called *er mins-buth*, which consists merely of an iron stake driven into the ground (unless he has had the good fortune to buy a European anvil). All iron is forged, none is cast; in fact, the only metal melted and cast is lead, used for bullets. The Riffian smiths are, however, able to perform one feat of considerable difficulty; they weld steel edges into soft iron implements, an art unknown, I believe, to the Negroes of Central Africa, from whom, judging by tradition, the physical type of the smiths, and the types of implements, modern North African metallurgy was borrowed. The Vandals, according to Procopius,[2] are supposed to have shown the North Africans the secret of steel-working, whence the smiths may have obtained this technique, if they did not obtain it later from Jews or Arabs.

The blacksmiths make hoes, sickles, ploughshares, pruning knives, knives, shears, scissors, axes, adzes, chisels, hammers, and horseshoes. Such tools as files, vises, saws, planes, awls, needles, and pincers they import.

Hoes, sickles, adzes, and axes were formerly so made that they could be hafted only to shafts which bent at right angles; in other words, the hafting superficially resembled a Bronze Age technique, especially since the end of such a tool away from the cutting edge was equipped with a socket for the reception of the end of the hafting. In order to make this socket, the implement was constructed as follows: a flat square sheet of iron was ham-

[1] Marmol (chaps. 41, 43, 46) states that iron was extracted in the neighborhood of Melilla and of Megeo, as well as in Beni Said. The first two sites were probably worked, or at least directed, by townspeople, who were not, according to Marmol's own accounts, native Berbers in blood. In Beni Said the mining operations were well organized, and merchants came from as far as Fez to buy iron balls, from which the tools Berbers use were made.

The excellence of the organization of this extinct industry in Beni Said may have been due to Arab or some other non-Riffian inspiration. At the time Marmol wrote the eastern Rif was much more open to outside influences than it has been in later centuries.

[2] Marcus, p. 217 (from Cassiod. Variar. v. 1, Victor Vitensis I, 10).

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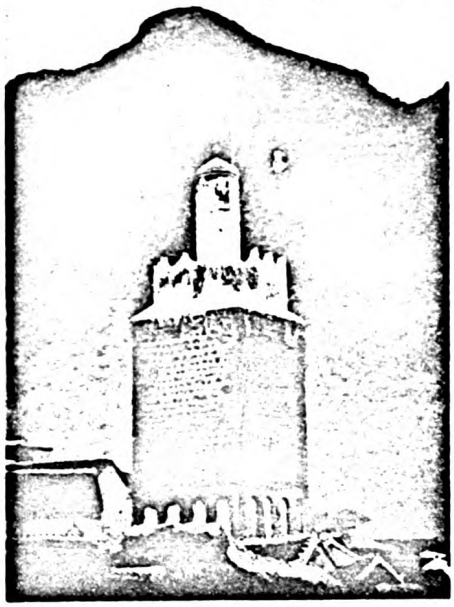
HOUSE TYPES 1



Old mosque tower, Sheshawen

Typical street, Sheshawen

Town square, showing octagonal mosque tower, Sheshawen

Thatched-roof house type, Tiguisas, Ghomara

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mered out, and then the two sides of it were folded over the central part until they met. This doubled-over sheet was then pounded and forged until the cutting end had become one piece; the separation of the flaps from the main body was exaggerated on the other end, and rounded until a socket fit for the reception of a handle was formed. After this a piece of steel was welded into the cutting end, smoothed, and sharpened. This method of folding and forging, with socket haft, survived until less than a generation ago, when the modern type of hafting, with a hole through the implement at right angles to the long axis, came in. The socket method of hafting with the sides folded over is found today among the tribes of the Congo. It is said that the first smiths to use the modern hafting were the Ulad el Hani of Beni Amart, traditionally Arabs, and that the smiths of Khebaba and of Taghzuth followed them.

Another similarity to negro technique, besides this method of hafting, is found in the method of ornamenting the handles. A braid of *halfa* or palmetto is sometimes made, and wound about the handle, leaving open spaces in spirals. The handle is then thrown into a fire and taken out before it starts blazing. The braid is then taken off, and a spiral pattern is found burned around the length of the handle. Adzes with this identical form of decoration are found in the Peabody Museum collections from the Congo.

The oldest smiths in the Rif, if we accept tradition, are the craftsmen of Khebaba in the Gzennaya. These Ikhebibshen, as they are called, formerly held the monopoly of dagger-making. The Khebaba daggers, famous throughout the Rif and sold in every market, are long straight blades, well tempered, and sharpened on all of one side and on half of the other. Blood-rills run down the blades; the cross hilts are of bone, as is the major part of the hilt, which is often covered with leather. These keen and effective daggers are encased in scabbards of brass pounded over wood. The designs on the brass, pounded in, are rectilinear and consist mostly of tilted crosses set in squares.

The Khebaba daggers seem to have become scarce about a generation ago, although they are still made in limited quantities and can still be obtained. They were supplanted in general popularity by Senhajan knives from Taghzuth, and by knives from Wezzan, both of these being of one model, slightly curved with the outside sharpened, and equipped with a guardless bone hilt inlaid with brass wire. These knives have in recent years been made in Meknes, and most of the present Riffian daggers are imported from that city, although dagger-making is still carried on by local smiths in each tribe.

The blacksmiths of the Rif leave their shops for two principal purposes, to go to Melilla or Fez for metal, or to go to market, where they shoe horses and mules (see plate 15) and slaughter animals the meat of which is to be sold. The horseshoes and mule shoes which they use were formerly home-made, but at present bear the appearance of European manufacture.

The second class of metal workers, the Jews, are not found in all the tribes. They live only in that part of the Galiya immediately adjoining Melilla, at Bades, in the tribes of Beni Bu Frah and Mestassa, at Targuist, occasionally at Ajdir, and in the Jebarna section of Gzennaya. Before the rise of Abd el Krim, who set them to work making hand grenades, they seldom dared enter the tribes other than those mentioned, since the appearance of a Jew was traditionally greeted with a volley of stones. Many of them speak no Arabic, conversing only in *thamazighth*, and frequently one finds individuals among them with no apparent Jewish physical characteristics, but able to pass easily as Riffians. Their specialty is the manufacture of brass trays, sugar hammers, silver and pewter brooches, silver finger

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rings, and bracelets. Formerly they did not dare peddle their wares far from home, but sold them to Riffian hawkers who took them to the inland markets.

The third class of metal workers, the gunsmiths, is for the most part concentrated in Taghzuth, although native gunsmiths are found in many of the Riffian tribes. Most of the latter have learned their trade at Taghzuth or in Arab towns.

Tradition says that the Riffians first obtained metal pipes, suitable for use as musket barrels, in an archaeological deposit at Bades, and that these pipes were peddled all over the Rif. Later, when the pipes are said to have been exhausted, similar ones were obtained from Ceuta and the Peñon de Velez. The gunsmiths make all the other parts of the gun themselves: they bore the priming hole and make the lock, springs, trigger, pan, and the hammer which holds the flint. The stock, which they make from local wood, they decorate with inlaid wire and with ivory, which is exceedingly rare and valuable. The flints, which are sold in all the markets, are made at Khebaba and by the Asht Aziman of Beni Tuzin. Many of the flints, however, are probably imported from England, as are some of the locks, which bear in many cases the royal insignia of Great Britain.

MANUFACTURE OF GUNPOWDER

The blending of gunpowder from its three ingredients, although carried on as a side occupation throughout the Rif, Senhaja, and Ghomara, was, before the Spanish occupation, the exclusive trade of one half of the Beni Mesduy. These craftsmen supplied the rest of the Rif with much of their explosive material, and since the consumption of gunpowder in the Rif, both as a festive gesture and for purposes of warfare, was tremendous, the craftsmen of Beni Mesduy were kept constantly busy supplying the demands made upon them.

Of the three component elements, sulphur and saltpeter were imported and sold in all markets; charcoal was manufactured locally.

PREPARATION AND WORKING OF LEATHER

Tanning, practiced throughout the Rif, Senhaja, and Ghomara, is a process consisting of a long sequence of actions. The rawhide stripped from the animal is first rubbed with wet ashes, which are left on until the hair is ready to come off; it is then given a rubbing with crushed *taida* bark and water, which is allowed to stay on it for several days; crushed juniper berries are next rubbed into it, after which it is soaked in sour milk; it is then given another treatment with wet ashes, and is finally washed, often by being immersed in a stream.

Leather so tanned is used in the manufacture of scrips, belts, parts of ploughs, covers to butter-jugs, amulet covers, and other objects. It is sewn, generally with strips of leather rather than with thread, by means of carpet needles imported from Fez and Melilla.

Leather is colored by the same dyes and the same methods employed in the dyeing of textiles.

Leatherworking is at present concentrated in the tribe of Taghzuth, where cartridge belts and scrips of characteristic type are produced. (See plate 16.) These articles will be fully discussed under the subject of clothing.[1]

[1] See below, p. 81.

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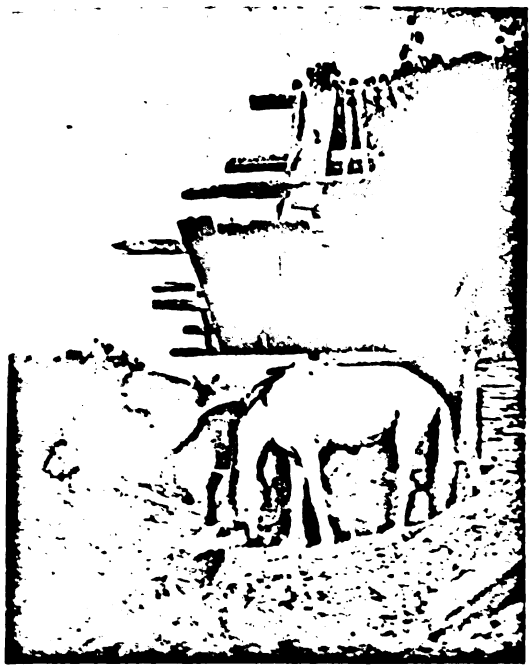
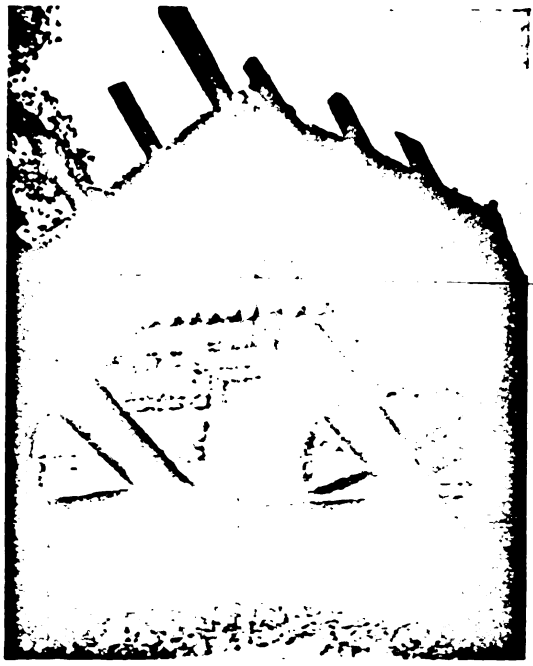
HOUSE TYPES 2



Side view showing projecting *arof*, Beni Bu Nsar



Front view showing projecting *arof*, Beni Bu Nsar

Village of Tamedith, Beni Bu Nsar

Two-storied house showing cribwork, Beni Bu Nsar

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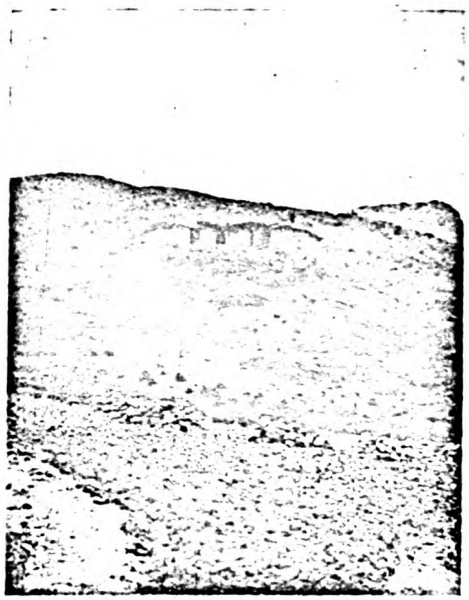
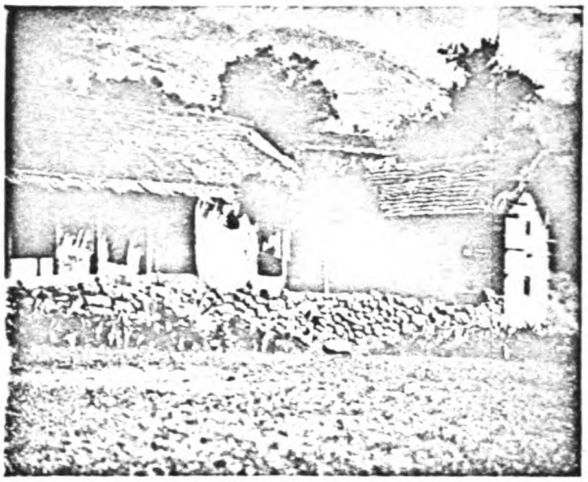
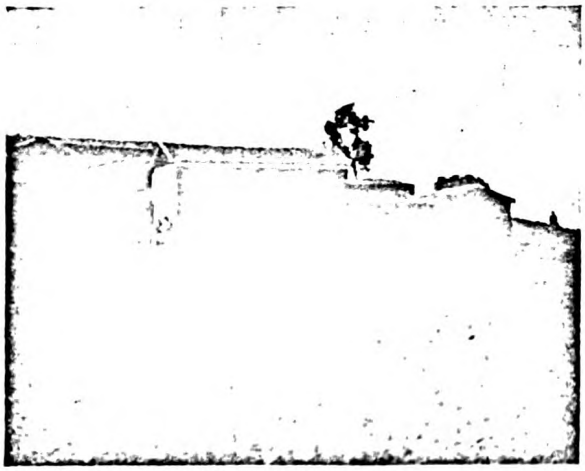
HOUSE TYPES 3



Cantonal mosque, Iherrassen, Gzennaya



Village mosque, left, and school, right, Tezarin, Taghzuth



Zawia of the Ikemrijen, on Tizi Ifri between Beni Amart and Beni Beshir, showing wooden *amiyimoth*

Ornate saint's tomb, Suk et Tnine, Taghzuth

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WOODWORK AND CARPENTRY

Woodworking is carried on as a trade throughout the Rif, Senhaja, and Ghomara, and in all of these places is considered a respectable profession, in no way to be confounded with the despised art of iron-forging. Carpenters are naturally most flourishing in the tribes where wood is most abundant, notably the tribes of the Senhaja Sghir, Beni Mesduy, Beni Amart, and Gzennaya. Half the tribesmen of Beni Mesduy are carpenters, and are called out to neighboring tribes, notably to Beni Amart, to ply their trade.

The tools used by carpenters are as follows:

tharyizinth thumkaran	axe	*er barimith* (Arabic)	awl
tharyizinth n thinjaraut	adze	*er ghazarith* (Arabic)	gouge
er minshar (Arabic)	saw	*ez ziar* (Arabic)	vise
er mithara (Arabic)	plane (see plate 15)	*jukkuth*	pincers
thrima (Spanish, from *lima*)	file	*uzer*	knife
imithi	chisel	*thimsharath*	scissors
thafathisth	hammer		

The Riffian and Senhajan carpenters use most commonly the axe, adze, and chisel. Planes, awls, vises, gouges, and files are of more recent introduction and hence are used less frequently. Saws are frequently employed, but one may truthfully say that Riffian carpentry is largely dependent upon adze technique. The adze is their tool *par excellence*, and they are extremely skillful in fashioning wooden objects with it.

Woodcutters, in felling trees upon the mountains, employ the axe exclusively. Once having felled the tree, they trim it, and, if it is too long to drag down the slope in its entirety, saw it into convenient lengths, unless they intend to use if for a roof-beam. The woodcutter chisels a square hole into the side of the log near the butt end, and with bits of wood wedges a long withe into it. If there are several men available for hauling the log, as many withes are wedged in as there are men. By lifting and dragging they move the log to the edge of the forest, and thence drag it down the slope, often finding it more difficult to keep it from rolling or falling end over end than to keep it moving. Sometimes the log is squared with the adze before being taken from the mountain.

When the woodcutter has succeeded in conveying the log to his house, he sets about preparing it for use. If the log is to be made into planks, he saws it lengthwise, making as many parallel cuts as he can, and carefully leaving the butt end solid — in other words, the planks into which the log has been sawed are still attached at one end. He takes the log, so cut, to market, and breaks off each plank as he sells it. (See plate 15.)

In making doors, beams, window frames, and shutters, the planks, whether originally sawed or not, are smoothed and flattened with the adze. So expert are the Riffian carpenters at wielding this tool that they can make a smooth surface on which no lines can be discerned. To leave a line is considered a sign of poor workmanship. With the adze they fashion wooden spoons, smooth, delicate, and graceful, and with the same tool a heavier implement, the plough.

MANUFACTURE OF TAR

Among the tribes in which the conifer *takka* is found, the manufacture of tar is carried on as a common occupation by woodcutters. These craftsmen fell the trees and cut up and chip sections of the trunks into small pieces. They then dig a hole in the ground, setting in

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it a large earthen pot or other vessel. Over this they place a perforated plate like a *seksu* dish, and over that the *takka* wood, shielded from the fire by an inverted vessel. Over all a pile of brush is heaped, and this covered with dirt, except for an ignition hole. The fire is then lighted, and smoulders for days. When it has finally died down, the woodcutters extract the tar from the lowest pot.[1]

Tar is called *jathukh*. It is the only product made from the sap of the pine, since turpentine and resin are alike unknown to the Riffians. It is found in Beni Bu Nsar, Beni Seddath, Beni Khennus, Ktama, Taghzuth, Beni Bu Shibet, Beni Hamid, Zarket, Beni Beshir, Beni Amart, Mountain Urriaghel, Iherrushen, Ikhuanen, Temjunt, Bured, and Beni Mesduy.

HOUSE TYPES

Sedentary Habitations. The tribesmen of the Rif, Senhaja, and Ghomara occupy permanent houses, square in room-unit form, and usually built, when there are more rooms than one, about a hollow square serving as courtyard. The house, *theddath*, is generally of stone masonry with a roof of clay, thatch, or shingles. The component elements are as follows:

azkak, the courtyard.

afshthair, the low or sunken area at one end of the nuclear room, used by the family cow.

thisi, the middle area in which the family lives.

arfith, a raised platform at the end of the room opposite to the *afshthair*. This platform is slept on by the family.

thighagha, a rude firehole, hedged with stones, and set in the middle of the floor, usually in line with the door. There is no chimney, except in rare cases where a broken pot is set into the roof, and ordinarily the smoke finds its own way out of the room.

arof, a wooden loft built over the cattle-pit. This loft, made of rafters covered with loose, unnailed planks, and supported by a post from beneath, is used mainly for storage of firewood. In the Beni Bu Nsar, the *arof* is made to project through the wall under the roof, which likewise projects, forming a covered-in second-story piazza, often slept on in summer. It is sometimes supported by posts, the village street passing under it. (See plate 18.)

sijum (Arabic *silum*), the notched pole which holds up the *arof* and delimits the edge of the cattle-pit. The notches in this pole serve as ladder rungs for mounting the *arof*.

a'atab, the wooden lintel over the door.

thaworth, the door, made of two or more adze-flattened pieces of wood, with projections left at either end on one side, to fit into the lintel above and the ground below and serve as hinges. There is no lock, no latch, and rarely a handle.

thabuarjth, the window, a square opening of small size in the wall. There is seldom more than one window to a room.

thaworth n thabuarjth, the shutter. When a window is larger than a mere peep-hole, it is entitled to and receives a shutter — merely a miniature door, kept closed most of the time.

thuzukha, the roof, the component elements of which will be discussed separately.

sethur, the ridgepole, generally a single log, either left rough or hewn into hexagonal shape with the adze. Sometimes, with the aid of a pillar, the ridgepole may be composed of two logs laid end to end.

[1] A more complicated method of tar distillation, used in the South Algerian oasis of Tidikelt, has been described by L. Voinot in *Le Tidikelt*, pp. 142–143.

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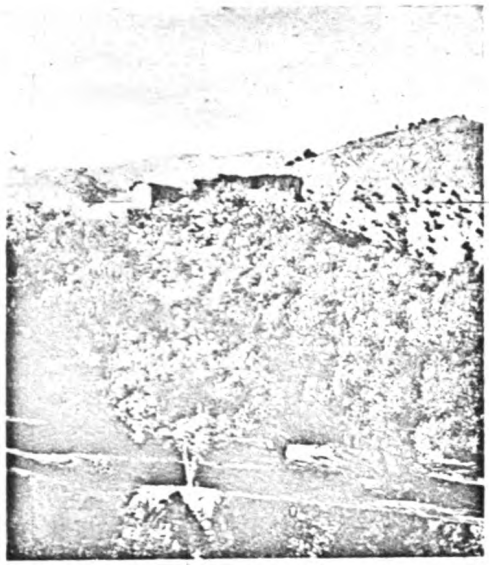
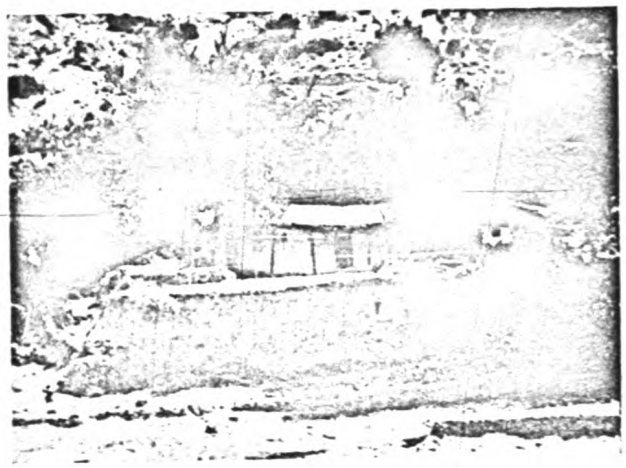
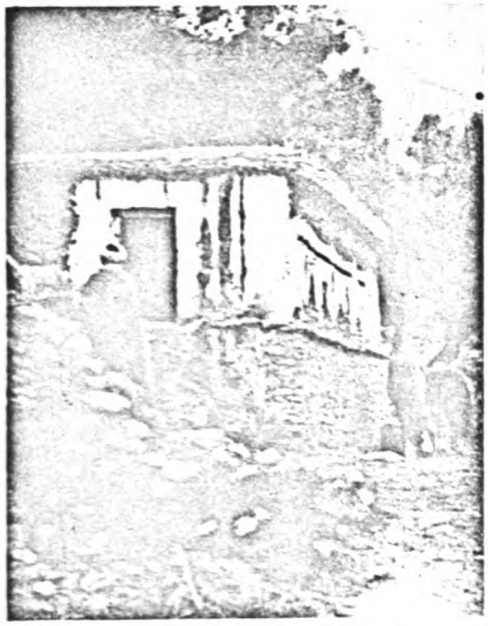
HOUSE TYPES 4



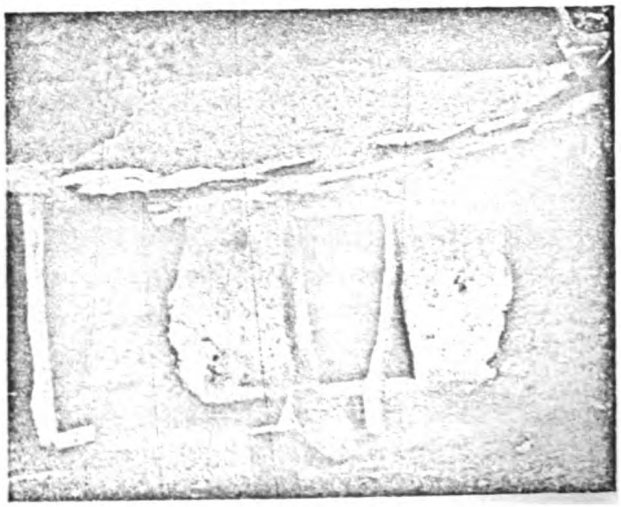
Cantonal mosque, Tiddest, Ikhuanen, Gzennaya



Village mosque, Tiddest, which served as Hajj Bukkeish's office during the Riffian war. This picture shows the porch clearly



The only two-storied house in the Iherrushen, Gzennaya



Courtyard interior, showing porch and sloping clay roof. Ulad Abd el Mumen, Iherrushen

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ṯahenneshth, the pillar, a whole log or tree trunk. When the pillar has a broad base suitable for holding the ridgepole without the aid of other devices, it is turned upside down. When the butt is of moderate breadth it is set upright, and at the top end thrust into a hole in a curved crutch-head.

ṯha'asitch, the wooden crutch-head, or capital of the pillar, a curved piece of stout wood, with its concavity facing upward to hold the ridgepole, and having on its convex side in the middle a square hole into which is set the squared end of the pillar. When the pillar is set butt upwards no *ṯha'asitch* is employed.

igsthisan, rafters, peeled poles set so close together that they touch, or nearly so, and reaching from the ridgepole to the walls. When the roof is to be of shingles, thatch, or cork the rafters are set further apart. In the tribes of Taghzuth and Beni Bu Nsar the rafters are often squared.

aris, the small sticks or boards nailed over the rafters, parallel to the ridgepole and the tops of the walls. Sticks form a dense covering, impervious to the earth which is put over them with a layer of leaves and brush in between. Boards are nailed on as in any European house.

aṣkeif, a porch, or piazza, consisting of the natural ground floor and an extension of the roof supported by pillars. (See plate 20.) It is found among the mountain Urriaghlis and in Beni Amart, Temjunt, Iherrassen, Iherrushen, Ikhuanen, Ulad Alu ben Aissa, Taghzuth, Beni Bu Nsar, Khennus, Seddath, Hamid, Shibet, Zarket, Beshir, and Ktama.

ghwarfth (Arabic *el ghorfat*), a second-floor room. The principle of building a two-story house is said to have been copied from the Arabs. The second-floor room must always be entered by an outside staircase running up the wall of the courtyard, by an outer wall, or by a notched pole. The *ghwarfth* is generally so low-ceiled that only a very short man can stand upright in it. The floor is treacherous, since it is made of thin rafters covered with peeled sticks and overlaid with buff-colored clay. Care must be taken to avoid crashing through into the room below. In Taghzuth and other regions of the Senhaja Sghir, where plenty of wood is available, the floor is made of planks nailed to sturdy rafters; despite this the planks are covered to a depth of about an inch with clay, which is continually working loose and making the upper chamber dirty. These people apparently borrowed the *ghwarfth* from others who had to use clay on account of the smallness of their wood; but did not have imagination enough to omit the clay when it was no longer necessary or even useful. The *ghwarfth* is not found among the mountain Urriaghlis or in Beni Amart, Iherrushen, or Ikhuanen. In recent years one has been built in Ṭiddest of Ikhuanen, by the Hajj Bukkeish, one in Ulad Abd el Mumen of Iherrushen, and one in Beni Msita of Beni Amart, by the Kaid Amar of that place.

Sloping roofs. The word for sloping roof is the general word for roof, *thazukha*. For a flat roof a special word is used, *asṯhih*. The fact that the generalized word for roof and that for a sloping one are the same would impute a greater antiquity to the sloping variety. The constant burning of houses in feuds and in the war with France and Spain has caused the destruction of many of the better houses in the Rif. Since the French and Spaniards both have forbidden the cutting of trees on the mountains, many families have found it impossible to obtain the lumber necessary for the restoration of the roofs to their original state, and have by necessity repaired them with the flat type of roofing, much against their inclination. Sloping roofs were found before the war in Iherrushen, Temjunt, Ikhuanen, Ulad Alu

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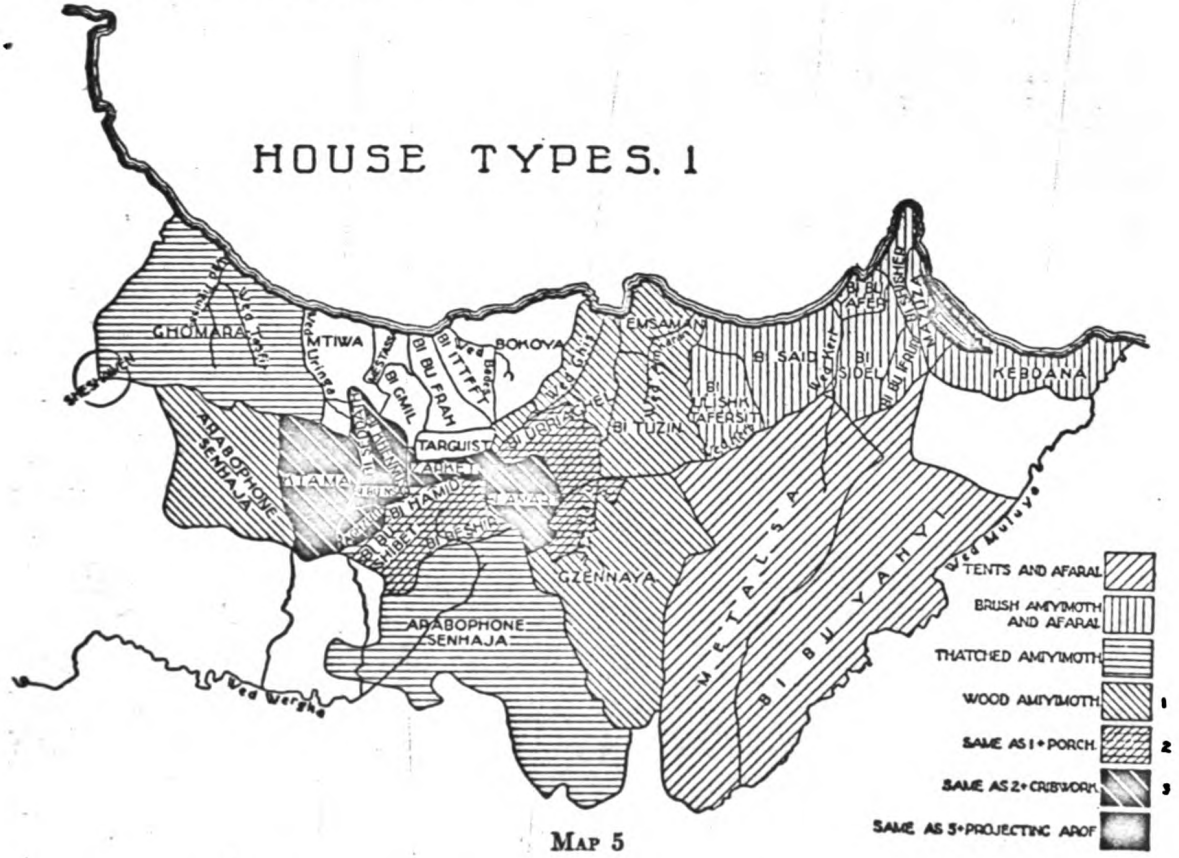
ben Aissa, Mountain Urriaghel, Beni Amart, Iherrassen, Zarket, Beni Mesduy, Targuist, all the Senhaja but Branes, and the Ghomara.

alim (Senhajan dialect), thatching as applied to roofs. Thatched roofs are distributed through Branes, Beni Krama, Khunduktamda, Beni Koraa, Ulad Azam, Bu Adl, Bab Wendar, Muziet, Ain Mediuna, Beni Bu Nsar, Beni Khennus, Beni Seddath, Beni Gmil, Zarket, Targuist, Beni Mesduy, Western Arabophone Senhaja, and the Ghomara.

er wakth (from the Arabic word meaning paper) are shingles split from cedar or pine logs and used for roofing. They are found in the Senhaja Sghir. When wood was more plentiful, shingles were used in the Rif.



MAP 5

adrim, cork, used for roofing. Cork roofs are found in the Senhaja Sghir except Beni Mesduy, in Western Arabophone Senhaja, Beni Krama, Khunduktamda, and Zrarka. The same peoples who use it for roofing often sleep on and under it, substituting it for blankets and mattress. Mud roofs are found throughout the Rif except among the tent-users, and in the Ghomara.

Cribwork of wood, or beams laid horizontally in the masonry. This construction strengthens the walls in regions where the snowfall is heavy enough to endanger them. (See plates 18 and 19.) It is found in Taghzuth, Beni Bu Nsar, Beni Khennus, Beni Seddath, Ktama, Zarket, and Beni Amart.

amiyimoth, or sheathing. A sheath is sometimes set under the eaves of houses, and sometimes on the sides, or on the ends in the case of flat-roofed houses, to protect the masonry

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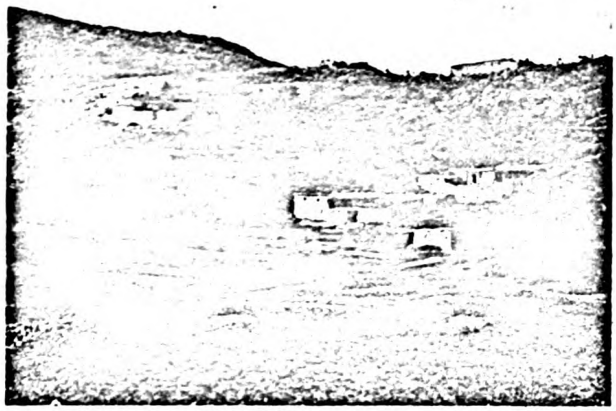
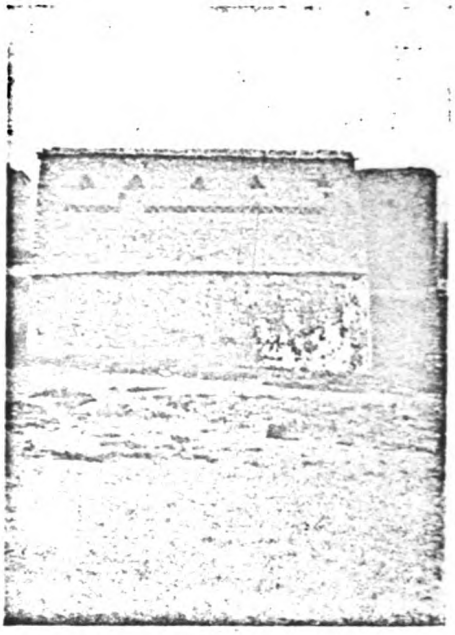
HOUSE TYPES 5

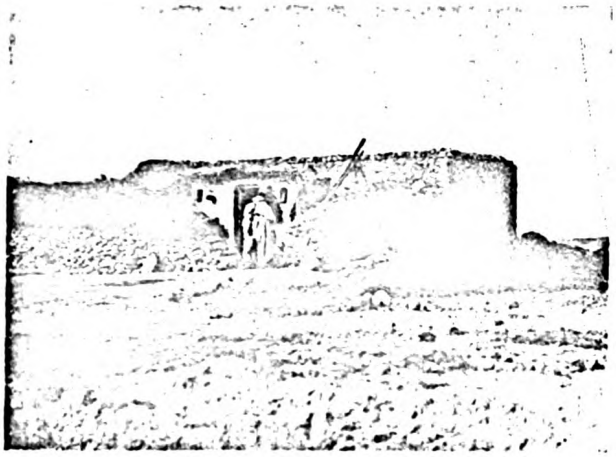


Village of Ajdir, Beni Urriaghel, flat-roofed house types

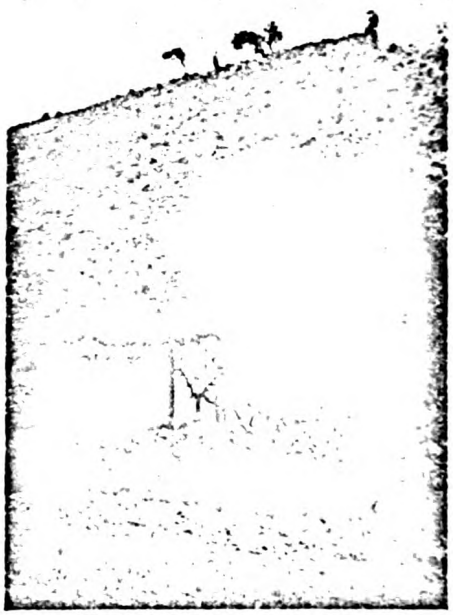


Defensible second story used by Abd el Krim's officers, Tafersit

Interior of Abd el Krim's central headquarters, Targuist. A recent composite house type



Flat-roofed house with *afarai*



Tomb of Sidi Misaud, on the Temsaman-Beni Ulishk border near the scene of the battle of Anual

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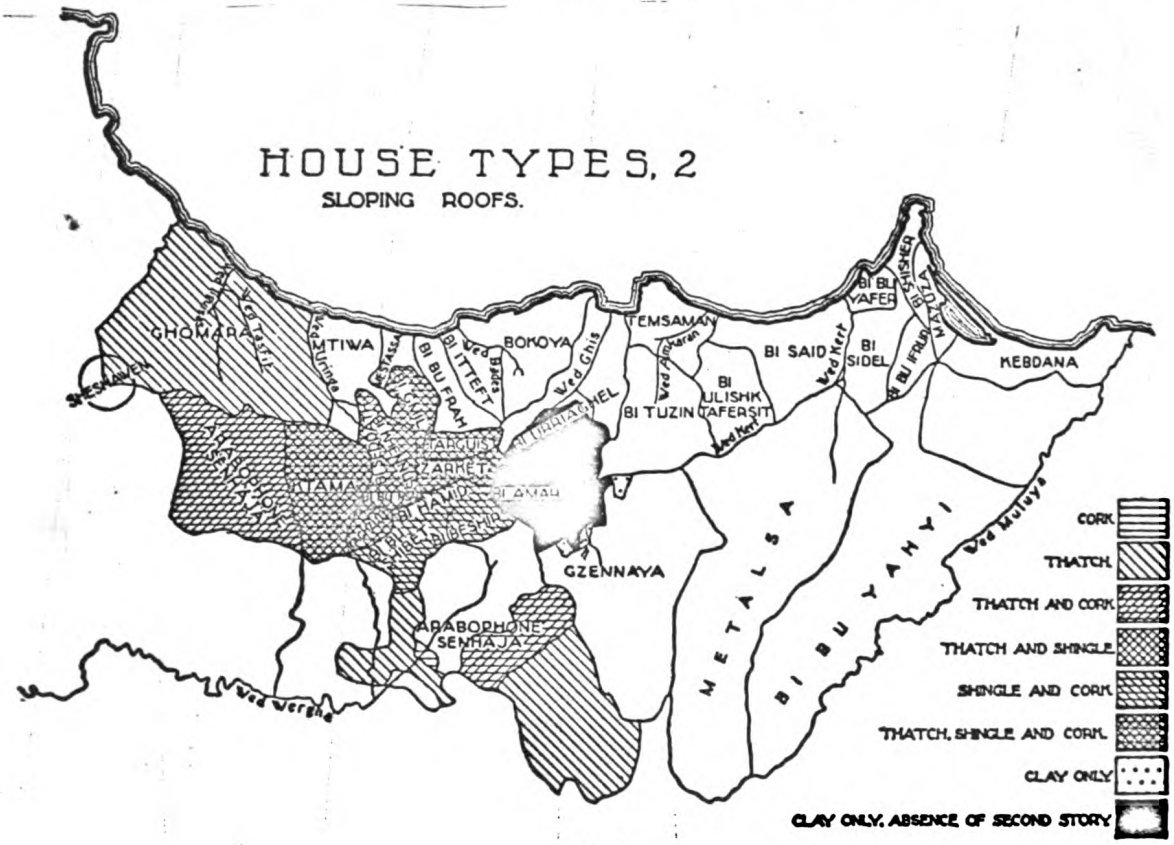
against the *shurrthuth*, a desolating icy wind, accompanied by rain and sleet, which strikes the Rif, particularly the mountain tribes, in winter time. (See plate 19.) Without this sheath the wind and rain would weather out the mortar and the stones might fall. There are three kinds of sheathing: the wooden type, made of planks nailed over the masonry; the brush type, made of a peculiarly dense species of bush, tied to the exposed area; and a type made of thatch. Wooden sheathing is used in Beni Tuzin, Temsaman, Beni Urriaghel, Gzennaya, Beni Amart, Senhaja Sghir, and Western Arabophone Senhaja; brush sheathing in Galiya, Kebdana, Beni Said, Beni Ulishk, and Tafersit; and thatched sheathing in Eastern



MAP 6

Arabophone Senhaja and the Ghomara. The Nomads and Bokoya, and the Maritime tribes, use no *amiyimoth*.

el asha (Arabic), a very flimsy, poorly constructed house used in the Ghomara, along with masonry houses. This structure is made of a pole frame tied together in rectangular shape, with a pitch roof; walls and roof are thatched with straw. The thatching is inferior to the Senhajan work.

Circular straw huts,[1] such as are so commonly seen along the roads in the French Zone of Morocco (see plate 22), are never used in the Rif, Senhaja, or Ghomara, excepting in Branes, where, since the war, several of them have been built as makeshift or temporary

[1] These are the *mapalia* referred to in ancient documents. See Oric Bates, *The Eastern Libyans*, p. 167.

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shelters. Even the Metalsa and Beni Bu Yahyi, who live entirely in tents, do not make them.

When a house is being built, neighbors come in from all sides to help, especially with transporting heavy logs and setting them into place. These workers are rewarded for their voluntary services by a huge repast cooked every night by the owner of the house. When the lintel of the door is put in place, the owner of the house slaughters a hen under it in the doorway, so that the blood spatters the threshold and the lintel. This action is followed by a delay in work while a special feast is eaten. Similarly, when the ridgepole has been set in place, the owner climbs astride it with a goat, or, if he be poor, with a hen, and slaughters the animal, holding it in such a way that its blood will spatter the ridgepole. After this he throws the carcass down, and the meat is made into festive food.

The interiors of all houses are whitewashed more or less frequently, and the beams too are generally whitewashed. Sometimes a streak of the whitewash is put around the rims of the windows on the outside. Only in the case of mosques and marabutic tombs, however, is the outside of a building ever completely whitewashed, and then it is obligatory. When one sees a mosque or tomb without this distinctive feature one may be sure that the structure has been abandoned for a long time.

Intrusive Features, Usually Associated with Mosques. *The Moorish arch* in doors and windows is found only in the Senhaja Sghir excepting Beni Gmil. It is probably an innovation recently brought from Fez or Sheshawen, and may be used on dwellings as well as on religious structures.

Domes are found on saints' tombs in Galiya, Kebdana, Beni Said, Beni Ulishk, Beni Tuzin, Temsaman, Tafersit, Ajidir, Bokoya, Targuist, Beni Itteft, and Beni Bu Frah. Since domed tombs were built entirely by Spanish "renegados," or fugitives who entered the Rif and became Riffianized in religion and culture, they can hardly be regarded as a Riffian cultural feature. (See plate 22.)

Tiled roofs are found only in Zawia et-Tifah of Ikhemrijen, in Targuist. These tiles, of the same green-glazed variety as those found in the cities of Arab Morocco, were brought from Fez and were set up by "renegados." (See plate 22.)

Minarets. The only minaret in the Rif, to my knowledge, is that connected with the Zawia et-Tifah at Targuist — obviously an imported feature. (See page 22.)

Mosques differ from ordinary habitations not only in the possession of an external coat of whitewash, but also in that they are seldom built so as to form a courtyard, the rooms being frequently strung out in a line or in irregular order. In this way the porches, which in ordinary houses face on the courtyard only, are visible from the outside.

Tents. The Metalsa and Beni Bu Yahyi live in tents made of woven goat hair and *halfa* braids, the *halfa* serving as warp and the goat hair as weft in this peculiar fabric. The Beni Bu Bekar and the Ait Driss, members of the Metalsa living near Beni Mohammed of the Gzennaya, inhabit houses built like those of Beni Mohammed instead of tents. (See plate 22.)

The tent cloth, rectangular, its length greatly exceeding its breadth, is held up by a three-pole arrangement resembling the Greek letter π. The two upright sticks, which are socketed into the top one, are called *iamuthen*, and the top stick, or ridgepole, is called the *aghiur n usun*, or tent-donkey; its length equals about half the breadth of the tent. These three relatively short pieces of timber can be taken apart when the tent is dismantled, and take up very little room. The tent is held down on the sides by pegs, called *izhazhen*, sepa-

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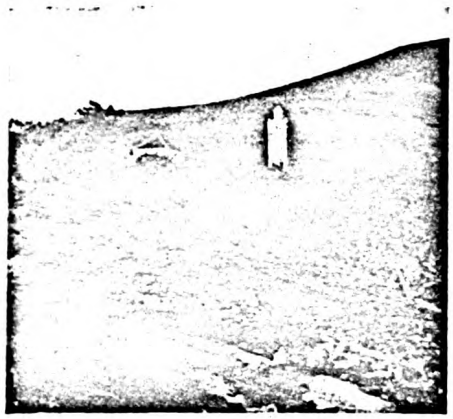
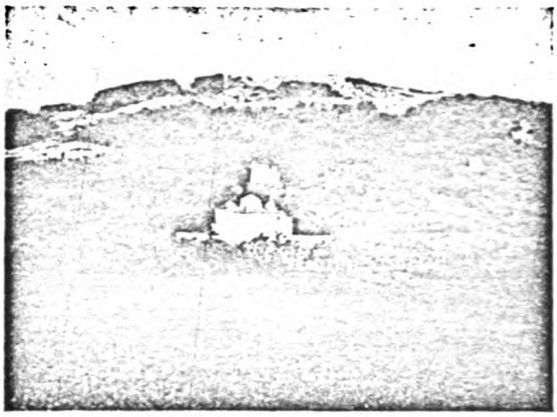
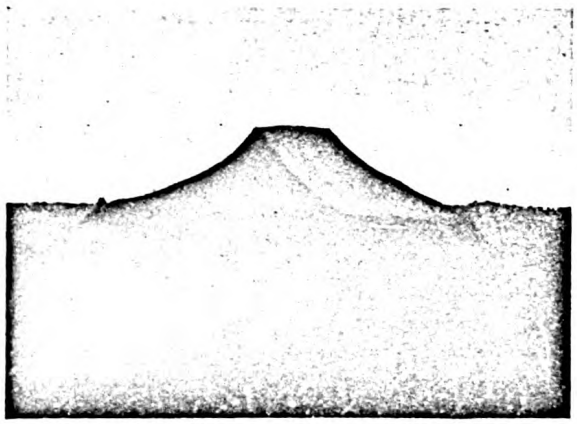
HOUSE TYPES 6



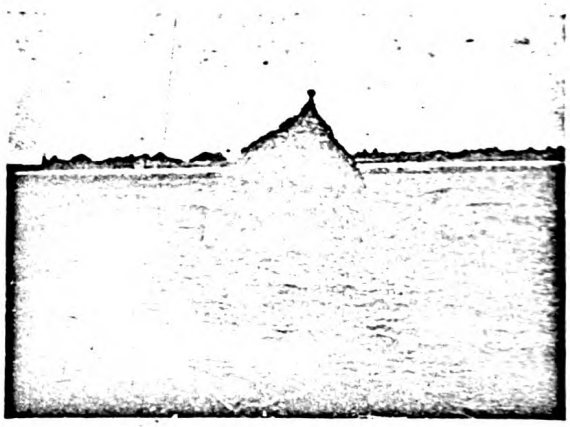
Zawia et-Tifaha, Targuist, the seat of Sidi Mohammed Akhemrij. Tower and tiled roof built by Christian *renegados*. Tiles imported from Fez



Saint's tomb, Galiya. Domes constructed by *renegados*



Nomad tent, of the type used throughout North Africa



Straw bee-hive hut, the *mapalium* of the ancients, characteristic of the Atlantic coastal plain, and recently introduced into the Branes

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rated from the tent proper by long ropes, purposely designed so that the edge of the fabric composing the tent will remain about two feet from the ground. The space under the tent is sometimes walled off with matting set up as sides, and sometimes left open.

About the tent or group of tents the Nomads place thick hedges of cut, dried brush, of a particularly thorny and impenetrable variety, called *afarai*. This forms a serviceable enclosure to protect the livestock against animals and the whole encampment against invaders, since anyone stumbling into it would arouse the dogs (if the latter had not already become aware of his approach).

In Galiya, Kebdana, Beni Said, Beni Ulishk, and Tafersit, the sedentary peoples have adopted the *afarai*, but for a different purpose: they set it around their courtyards and onion patches to keep out wild animals. (See plate 21.)

Among the tent-dwellers of Braber extraction and the Arabs, every tent contains a *thaghirtch*, a cloth curtain dividing the area into two rooms, one of which is intended as a chamber of seclusion to which the women may retire when guests arrive. Among the Beni Bu Yahyi and Metalsa such an arrangement is not found, since all sleep and live together under the one undivided cloth. Among the sedentary peoples, when a family living in a one-room house wishes to insure privacy for the womenfolk, the *thaghirtch* is hung up across the room in such a way that the part open to the guests includes the door, the women being virtually imprisoned until the guests depart. It seems strange that in the Rif only the sedentary peoples should use what is elsewhere a nomadic means of obtaining privacy.

HOUSEHOLD FURNITURE

Household furniture in the European sense is for the most part lacking. What there is consists of mats, skins, mortars and pestles, wooden bowls, pottery containers, baskets, basketry trays, and little else.

Stools are found only in the nuclear area. The Riffian stool, called *thiminjarth*, is a low affair, adzed from a single block of wood, with a long gouge parallel to the edges scooped out beneath to form a cleavage between the two sides. The top is concave and built for comfort. The Riffians who use these stools are very much ashamed of them and hide them when guests from outside the nuclear area are expected. The stools are found in Beni Amart, among the mountain Urriaghlis, and in Temjunt, Iherrushen, and Ikhuanen.

The Taghzuthis use a sort of low stool made from several pieces nailed together, with four legs and a concave top. This seat is used by leatherworkers, who get down and sit on the ground when not working. These Taghzuthi craftsmen also possess low round tables on which they cut leather, and others, built like butchers' blocks, on which they pound it. Both these types of table and the local chair form are definitely associated with the leather industry, which is a recent one in Taghzuth; indicating that these articles of furniture are of no great antiquity at Taghzuth. Other objects which adorn the house are pottery, basketry, cloth, and blankets, described elsewhere.

Pegs along the walls serve to support clothing, firearms, leather bags, earthen plates, bottles of European manufacture (highly prized and hung up in places of honor), and strings of peppers and onions, which likewise festoon the rafters. Sausages sometimes hang clustered from these capacious rafters, which likewise furnish a resting-place for the family distaff, wool cards, and wool. The upright women's loom is set up in the rooms least likely to be used in the entertainment of masculine guests.

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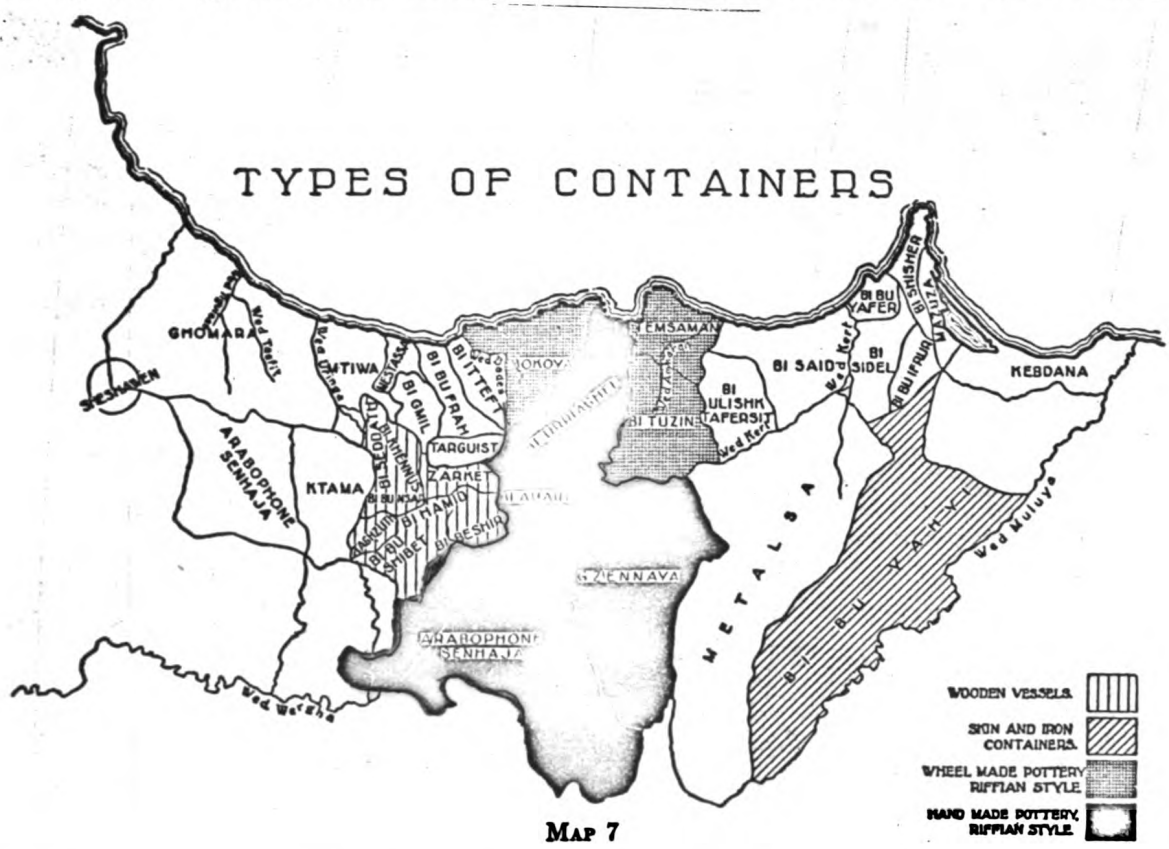
POTTERY

In the Rif and the territory adjacent to it pottery is shaped both by hand and on the wheel, each system of manufacture possessing its own shapes and types of decoration. Hand work is the exclusive duty of women and wheel work of men.

There are two kinds of clay used, a white variety called *therakhth*, which breaks easily and is considered inferior, and red clay, called *er-asr* (from the Arabic *el asl*, meaning "honey"), so termed because when it is fired metal sometimes runs out of it, looking like honey. Nothing is done with this slag, and the inhabitants do not even know what metal



MAP 7

it is. This "honey-clay" is red before firing, and buff after; it rings when struck, and makes a harder vessel than the white variety. From it most of the hand-modeled pots are constructed; the white variety is more commonly used on the wheel.

In arranging the paste, the potter crushes dry clay to powder, sifts it through a sieve, and then mixes it with powder crushed from old potsherds to serve as tempering. Sometimes crushed stone is used instead, but only in case the pots are intended for sale rather than for home use, since vessels made with this tempering are considered inferior. When the powdered clay and tempering have been mixed, water is added and the whole kneaded until it reaches the proper consistency.

In the case of hand-made pottery, the potter pats out a piece, flattening it to form a bottom. She then rolls out a strip as for coiling, but flattens it and puts it around the edge

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of the bottom piece, set on edge. She does not coil it up over itself, but cuts it off, at the proper length, presses the ends together, and adds another strip to the top. When the pot has reached the required height she shapes it by means of a stick held inside and out, and by manipulation with her fingers. Handles and spouts are made separately and put on after the shaping has been finished.

The pot is then fired; while this is going on the women crush the ripe leaves of a wild bush called *bu b'kennin*, which resembles dogwood. From the leaves exudes a watery yellow juice. When they have taken out the pots, they paint them, still hot, with this juice, applying it with a stick, bit of straw, or rag, in geometric design, yellow on the buff of the clay. They then replace the pot in the kiln and rebake it. When it is taken out for the second time the design is black on buff, and gradually fades to sepia on buff. This pottery is found in Beni Urriaghel, Gzennaya, Beni Amart, Eastern Arabophone Senhaja, and Beni Mesduy. (See plates 23 and 24.)

The wheel-made pottery manufactured by other tribes resembles the Arab pottery found all over the Arabic-speaking portions of Morocco, both in technique of manufacture and in shape. The vessels are generally cylindrical in form and white in color, without a slip; the wheel striations are plainly visible. Design is limited to a few squiggly lines running down the sides from the brim as the result of the fusion of a pigment put on the brim before firing. Distribution is in Ghomara, Western Arabophone Senhaja, Ktama, the Maritime tribes, Bokoya, Targuist, Temsaman, Beni Tuzin, Metalsa, Beni Said, Galiya, and Kebdana.

The shapely designs of the central Riffian ware, two-handled drinking pots with down-curving lips, shallow plates, spouted milk-jugs, and semi-globular bowls, are copied on the wheel in certain tribes adjacent to the central Riffian area. The design typical of the Rif is put on, a little too perfectly to be true, and the product sold in markets as Riffian pottery. This hybrid type is made, not as a survival of Riffian design in an area of recent adoption of the wheel, but as a definite attempt to imitate and to defraud. The wheel is reputed to have been used in the regions where it is now employed from the most remote times, and the diffusionistic tendency has been against rather than for its dissemination. Wheels have been abandoned in Targuist in favor of the cruder technique, and the same tendency is evident in Bokoya, Beni Tuzin, and Temsaman. Distribution: Bokoya, Tuzin, and Temsaman.

WOOD, SKIN, AND IRON CONTAINERS

Throughout the Rif wooden bowls are adzed out of tree-trunks. These bowls are of one piece, and round in shape. Another type of wooden container, used in serving *seksu* to a large company, is the same as an old-fashioned washtub, shaped like the bottom part of a barrel, and carried about by means of chain handles. Wooden containers, carved from one piece or put together in the manner of barrels, are the characteristic product of the tribes of the Senhaja Sghir, with the exception of Ktama. These tribes make no pottery, and have a greater abundance of wood than any other group. They utilize wooden vessels for every purpose which does not necessitate the use of fire. For the latter purpose they import pottery vessels from the Rif; but they have in recent years produced an undecorated imitation of them in Taghzuth.

Although the Metalsa make wheel-turned pottery, their equally nomadic neighbors, the Beni Bu Yahyi, neither make it nor employ it to any great extent. The Beni Bu Yahyi use

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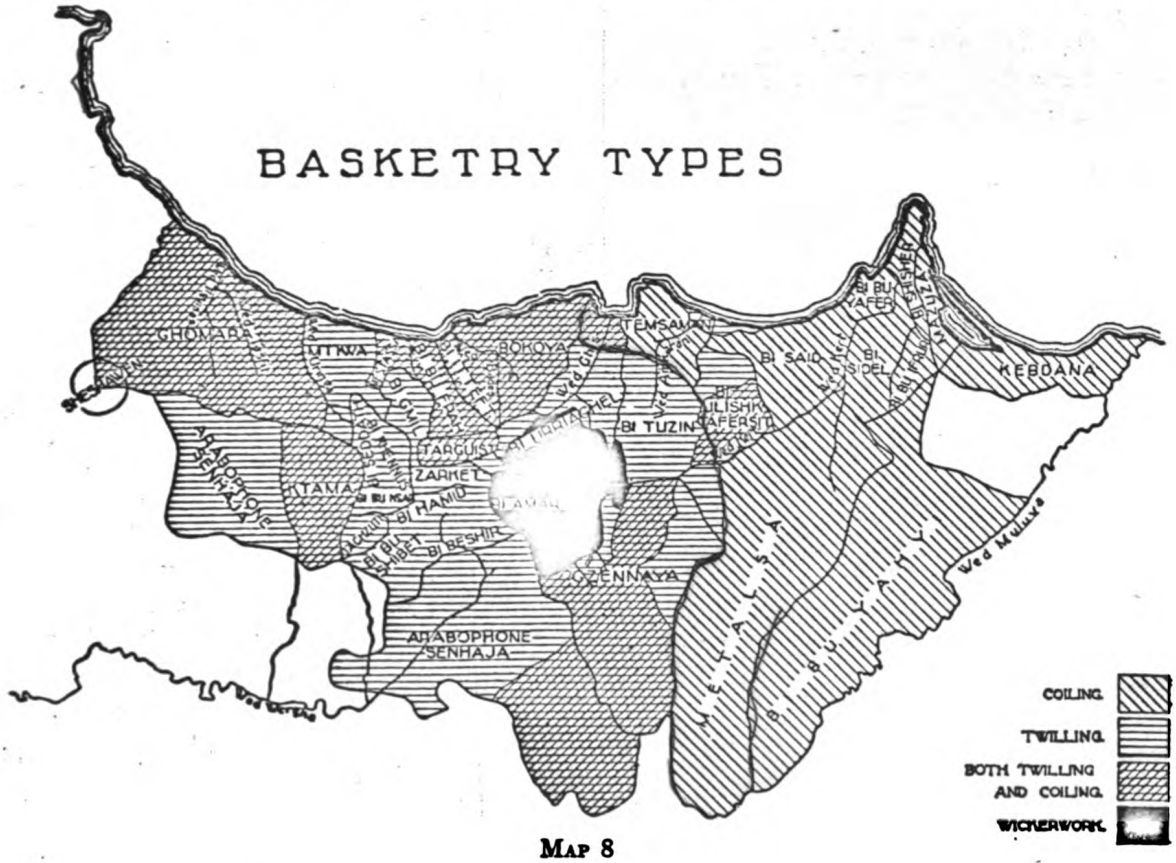
for the most part containers of iron and of skin, materials which are not apt to break in the course of a nomadic existence. Skins are used to hold all liquids, and likewise as churns for butter.

BASKETRY

There are three types of basket-making employed in the Rif; coiling, twilling, and wickerwork.

Coil-baskets are made with a bundle of *azref*, a grass, circular in section, as rod, and with palmetto leaves for wrapper. Coiled baskets, generally in the form of shallow trays, called



MAP 8

tubbuḳ, are supposed to have been introduced by the Arabs. They are found in Ghomara, Mestassa, Beni Bu Frah, Beni Itteft, Bokoya, Ajdir, Branes, Ktama, Targuist; Khebaba, Shawia, and Beni Yunes of Gzennaya; Temsaman, except for the villages near the sea; Beni Said, with the same exception; Galiya, Kebdana, el Azib of Meidhar, Tafersit, lowland Beni Ulishk, Metalsa, and Beni Bu Yahyi.

Twilling, called *iji*, is employed in the manufacture of the *shwari*, or pack-saddle panier, and of the *endu* or flat basket with two handles used as a container of dried figs and raisins, also as a table upon which bowls are set and upon which bread rests during repasts. These articles are made from either *halfa* or palmetto, whichever is available. They are distributed through Beni Mohammed, Shawia, Ulad Alu Fars, Khebaba, Iharshliyen, and Ain el

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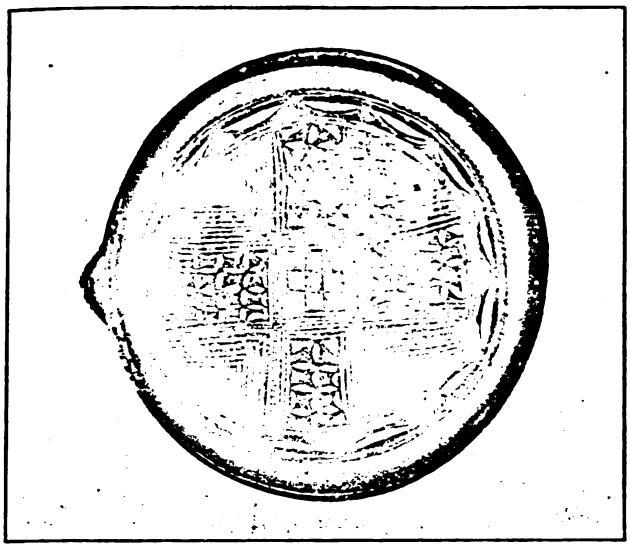
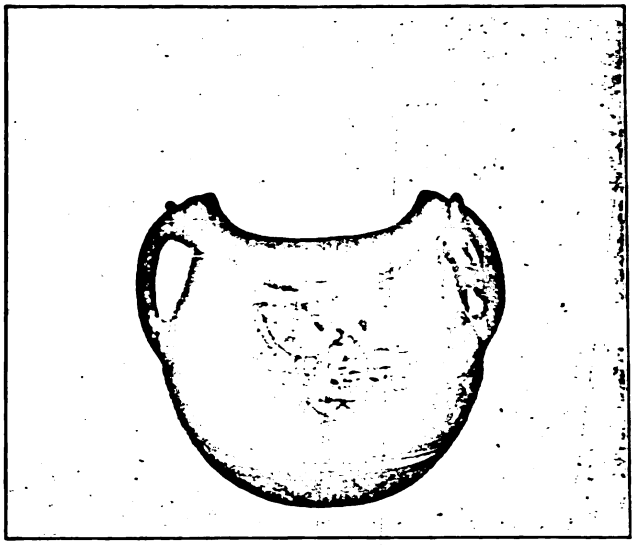
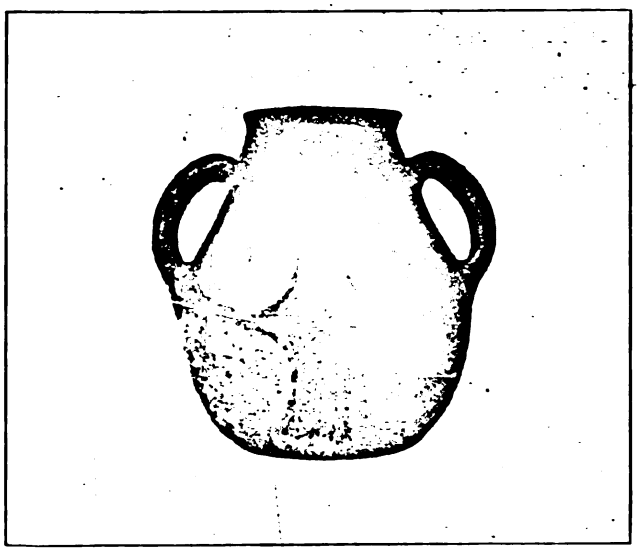
CENTRAL RIFFIAN POTTERY



Targuist



Gzennaya



Gzennaya

Beni Urriaghel

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Hamara of the Gzennaya; Bokoya; Ijaonen of Beni Amart; Beni Hadifa and Ajdir of Beni Urriaghel; Sidi Bu Daud of Temsaman; the Metalsa dwelling near Beni Mohammed, Beni Ulishk, Tafersit, all the Senhaja and Ghomara, Beni Mesduy, Targuist, and the western Maritime tribes.

Wickerwork, the third type, is called *asarow n ughanim*. Oleander switches and reeds are used, the oleander for the uprights, or warp, and the split reeds woven in and out between them. Baskets made of this material are often of great size, four to five feet in diameter and six feet in height. They are used for the transportation of grapes, figs, almonds, walnuts, and the like, and for the storage of raisins, dried figs, and dried apricots. (See plate 24.) They are to be found in Iherrassen, Ikhuanen, Ulad Alu ben Aissa, Ikaroen, Temjunt, Bured, all of Gzennaya, Mountain Urriaghel, Taghzuth n Tassa and Tizera n Imziwen of Beni Tuzin, Beni Amart, Bu Adl, Beni Koraa, and Ain Mediuna of the Eastern Arabophone Senhaja, and Beni Bu Shibet.

TEXTILES

Textiles made in the Rif are confined to woolen cloths, all cotton and what little silk there is being imported.

The first process in textile manufacture is washing the wool in a stream with the boiled roots of the plant known as *thaghigheshth*. The wool is hung up in the rafters of the house until dry, and is then carded. In the old days, cards of local manufacture, called *ikarthashen*, were employed, but today the cards used throughout the Rif are imported from Sheshawen and are of European type. The indigenous type consists of a long wooden handle about two feet in length, with a flat piece of cow's horn attached to one end. Into the horn are set two parallel rows of spikes, either wooden or brass, about the length of a human finger. The rows are set at right angles to the axis of the handle, and the spikes project from the handle at a right angle. These cards were kept in pairs, and when not in use were pushed up into the rafters, where, in old houses, a few of them may still be found.

Spinning, the next process after carding, is done in two ways:

1. The thread is suspended from a distaff, on which the rove is wound, and attached to a spindlewhorl held just off the ground. Thread spun in this way is used for warp and is called *asarau*.

2. The rove is spun on the thigh and gathered into a pot below. This thread is used for weft and is called *amshin*.

Weaving, the final process of textile manufacture, is done on two entirely different kinds of loom under different circumstances. The more primitive is the *azta*, an upright two-bar loom with a stick heddle and a wooden comb for battening the warp. The operation of the *azta* is entirely in the hands of women. A girl who does not know how to weave on the *azta* has a poor chance of marriage, and consequently girls learn this art at an early age. Parties are held for the teaching of it; a girl who is not expert invites a number of skilled weavers, who go to her house, eat, and instruct her. The cloth produced by the *azta* is called *tadsha* and is used for women's clothes, men's sleeveless shirts worn in winter, and blankets. It is generally white, sometimes with red horizontal bands or stripes. The *azta* is employed throughout the region under consideration, except in the tribes of Beni Bu Yahyi and Metalsa.

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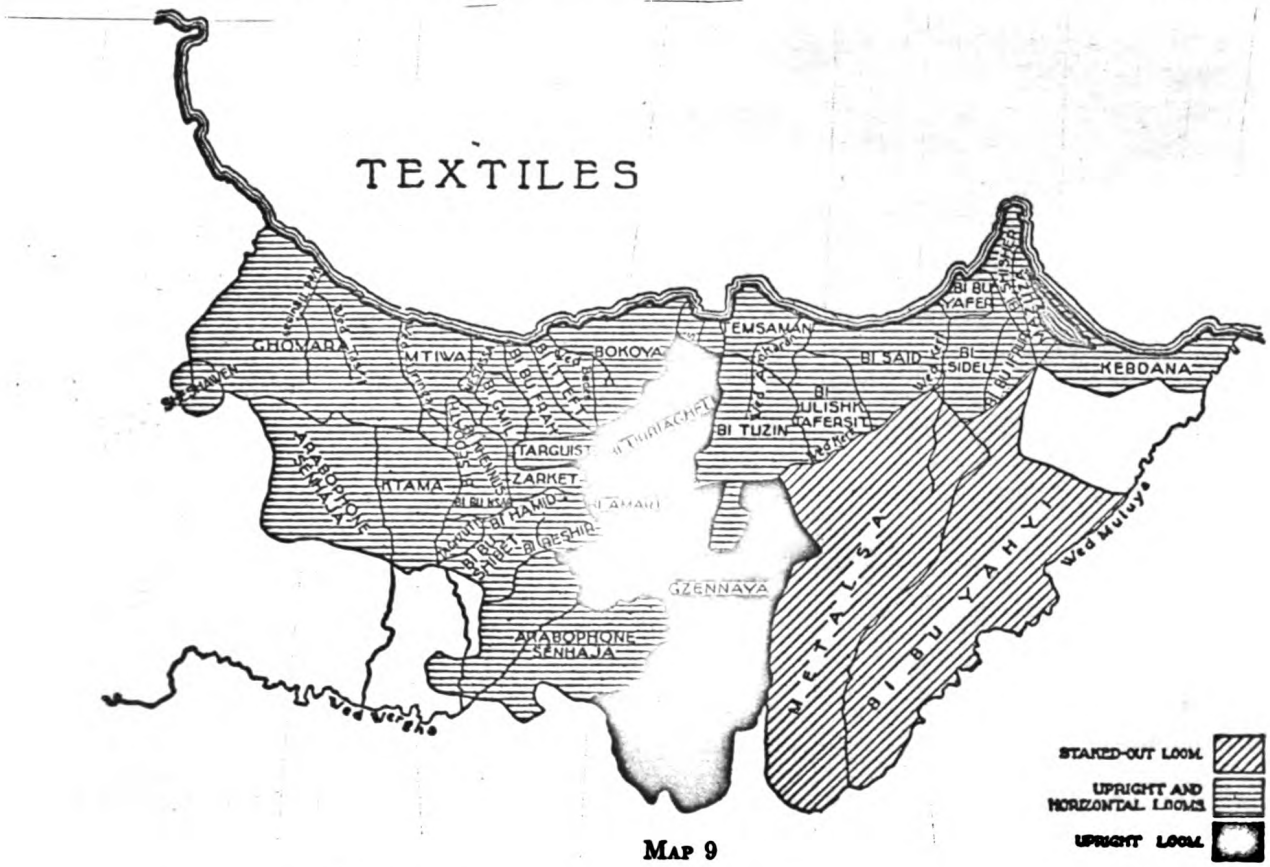
The second and more advanced type of loom, called *marmath*, is a horizontal extended mechanism of complicated design, with looped-wire heddles operated by a foot-treadle, a shuttle, and a two-bar wire batten suspended from above. With this machine the weaver, who is always a man, can turn out in a reasonable time a first-class piece of homespun cloth comparable to that produced on Scotch or American hand-looms. The cloth woven in this fashion is generally dark brown or black in color, the black cloth being highly valued and made without dyeing from the wool of black sheep. The thread spun for the *marmath* is finer than that prepared for the *azta*. The *marmath* is used in Sheshawen, all the Eastern



MAP 9

Arabophone Senhaja but Marnissa and Branes, all Western Arabophone Senhaja and the Senhaja Sghir, the Ghomara, Targuist, the Maritime tribes, Beni Ulishk, Tafersit, Temsaman, Beni Said, Bokoya, Beni Tuzin, Galiya, and Kebdana. The tribes which have none are Beni Amart, Marnissa, Branes, Gzennaya excepting Beni Yunes, Urriaghel excepting Ajdir, and Beni Mesduy. The use of the *marmath* seems to have spread from Sheshawen as a western center, only Ulad Azam of the Eastern Arabophone Senhaja having employed it in earlier times. Its use in the east may have spread from Melilla or Algeria.

A third type of textile manufacture is found among the nomadic Beni Bu Yahyi and Metalsa, who employ neither the *azta* nor the *marmath*. These people make long braids of *halfa* grass, and stretch them out on the ground, tied to iron stakes, in the form of a very long, somewhat narrow, loom. The *halfa* braids form the warp, and a coarse thick thread

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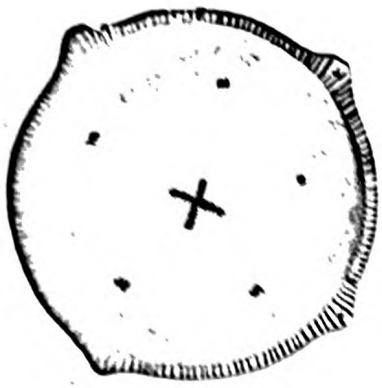
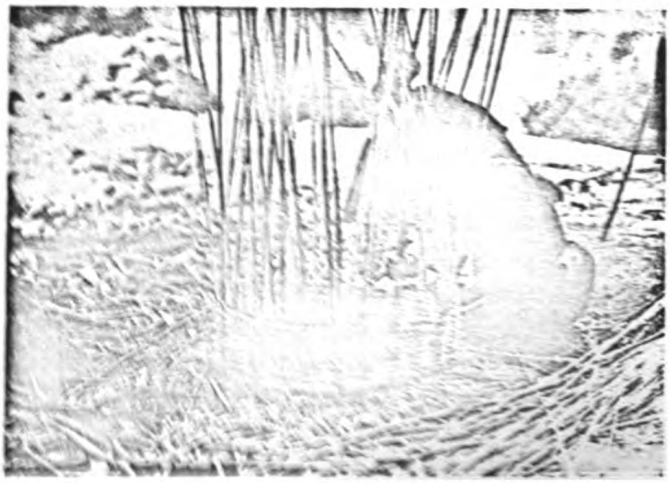
CENTRAL RIFFIAN POTTERY-BASKETRY

Bottom of unusual water-jug, showing entrance of cone through which pot is filled when lowered into a well. Ajdir, Beni Urriaghel

Side view of the same



Bowl showing eastern influence in design. Temsaman



Making a wicker basket for raisins. Ulad Abd el Mumen, Iberrushen, C[illegible]

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spun from black goat hair is put in as a weft by hand, without a shuttle, as in the case of the *azta*. The result of this process, a heavy, hybrid fabric, half textile and half matting, is used for tents.

Rug-making has not reached the high development among the Riffians which it has attained among the Shluh and Braber. Riffian rugs, woven on the *azta*, are coarse, harsh, and unattractive. The hooked-rug method, employed so effectively by the Beni Mgil and Beni Mtir of the Braber, is unknown. In fact, few rugs are made by the Riffians, who prefer to purchase them at Melilla and Fez.

All wool intended to be used in garments other than turbans and belts is thrown into a vat of dye before being carded or spun. The dyes used for coloring this raw wool are as follows:

brown, made from boiled apple-leaves.
red, made from the bark of almond-tree roots, boiled.
yellow, made from pomegranate husks.
green, made from the water boiled out of *thaghigheshth* roots or cedar cones.
black, made from an imported mineral called *zaj*.

These natural vegetable products are boiled in water, in which the wool is immersed and soaked. When it is taken out the colors are fast. Turbans and belts are dyed after they have been finished; when taken out of the dye they are rubbed with ashes, a process not considered necessary in the case of raw wool. Leather is dyed by exactly the same process as wool.

Tie-dyeing, called *thisfarsth*, is in some regions applied to cloth intended for use as turbans. The distribution is as follows: all Senhaja and Ghomara, and all tribes between them and Tangier.

CLOTHING

Riffian clothing was formerly made entirely of wool, locally sheared, spun, and woven. At present many garments are made of imported cotton cloth, and others of silk. In this compilation of garment-types most attention will be paid to the older elements of Riffian dress, the distribution of which alone is significant.

Masculine Attire. *ajjab*, the jellaba, is a woolen cloak with short sleeves and a hood. The jellaba is found all over North Africa and is not a distinctive Riffian garment, except as it differs in minor details from jellabas worn by other Berber or Arab groups. The Riffian jellaba is notably shorter than the average, reaching only to the knees, and its hood less broad than the hoods of the Ghomara and other western groups. The Riffian jellaba has definite shoulders; in the western type the transition from hood to sleeve is lacking. The Riffian jellaba is always either dark brown or black, but in other areas white, striped, or other colored types are worn. Furthermore, the Riffian jellaba can be readily distinguished by its embroidery, which will be treated separately. The jellaba is exclusivley a masculine garment. (See plates 25 and 27.)

er serham, the silham, is a cloak resembling the jellaba, but lacks sleeves and is generally much longer and more flowing. The silham is typical of the Braber and Shluh of the Atlas, and is likewise worn by the nomadic peoples south of the Atlas. In the Rif its use is limited to the nomadic tribes of the Garet. Until recently the silham was worn by both the Metalsa

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and Beni Bu Yahyi. At present the Metalsa have entirely discarded it, and the Beni Bu Yahyi wear it only on festive occasions. (See plate 25.)

thakhidusth. Three generations ago all Riffians wore a garment resembling a silham, but reaching only to the waist. This garment had a hood, lacked sleeves, and was heavily embroidered. It was worn over the jellaba and was considered highly decorative. The *thakhidusth* was woven on the woman's loom, as was the silham; jellaba cloth is always woven on the newer horizontal or man's loom.

thashbiar, a woolen shirt. The sleeves of this garment reach to mid-forearm, its collar opens on one side, and entrance for the head is permitted by a slit reaching along one side of the shoulder from the opening in the neck to the top of the sleeve. (See plate 25.) The collar is fastened by a looped string. This type of shirt is made of white wool, is very heavy, and is elaborately embroidered with colored silk. The lower edge, called *thimuar*, is ornamented by a row of heavy silken tassels called *thikhemesin*. This shirt is nearly as long as the jellaba, and is never tucked into the trousers. Over the *thashbiar* the Riffian men sometimes wear another shirt, called by the same name and identical in form, except that the neck of the over-shirt is cut low enough for easy insertion of the head. At present woolen shirts of this type are difficult to find, since manufactured cotton cloth has been adopted almost universally in place of the heavier woolen material. The style and design have, however, remained the same.

saarwair (Arabic *serwal*), trousers, entered the Rif at the same time as American cotton cloth, called *melikan*, about a generation ago. The trousers made from this cloth are very broad and baggy, and reach to a point just below the knee. The front and back are indistinguishable, except for a reënforcement patch at the rear, put on when the trousers are made. The tailor uses several yards of cloth and does not waste a scrap of material. Embroidery is confined to the narrow cuffs; the trousers are held up by a string like pyjamas. (See plate 25.) Another distinct type of trouser is found in the Ghomara, very short, open, and wide, reaching only to mid-thigh and exposing the lower part of the abdomen. The Riffians ridicule the Ghomarans when they see them thus attired. The Riffian type is found throughout the Rif and Senhaja Sghir except among the Nomads, Ktama, and Beni Hamid. The Ghomaran type appears in Ghomara and Western Arabophone Senhaja.

The garments just described were, with the exception of headgear and footgear, the only ones worn by the Riffians before the advent of Abd el Krim. During the early stages of the conflict with Spain, the Riffians, become in some cases affluent, went to Fez as tourists and brought home new and strange articles of clothing, notably the *bida'ia*, a woolen or felt vest of loud color, buttoning to the neck by means of many knotted tassels, and the *ferrajia*, a similar garment, reaching below the knees and equipped with broad, flowing sleeves. This latter garment resembles closely the familiar *kaftan*.

There are four principal types of masculine headgear, which will be described in the order of their antiquity.

1. *thaghareft*, a long narrow strip of stiff woolen cloth, with one end tapering and the other flat and broad. The flat, broad end is stuck up behind on the back of the head, and the tapering end tucked in when the turban has been wrapped around the head. This *thaghareft* forms a narrow turban which leaves the top of the head bare, and gives the appearance of a crown with an eminence behind. It is covered with heavy embroidery. The *thaghareft* is at present rare and difficult to obtain, partly because it has gone out of style,

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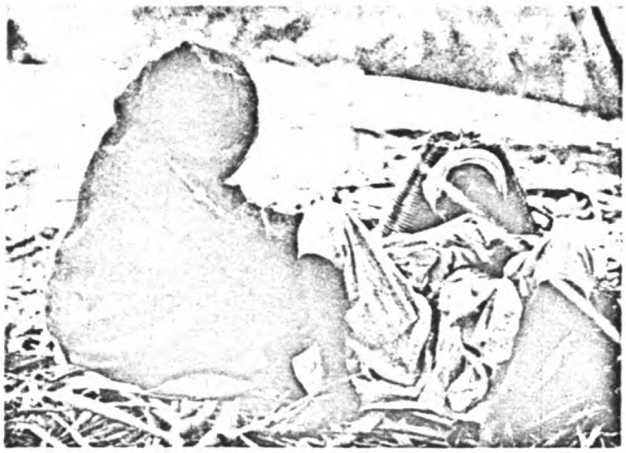
CLOTHING 1



Left, jellaba with hood up. Right, typical Riffian trousers. Iherrushen, Gzennaya

Normal way of wearing jellaba. Ajdir

Silham worn over jellaba by man from Beni Znassen (uniform of Spanish *mokhazniya*)

Shirt with shoulder-slit and cord attachment at neck. Iherrushen, Gzennaya

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and partly because it was part of Abd el Krim's uniform and would therefore throw suspicion upon the wearer as a rebel sympathizer. It is still worn, curiously enough, by many of the native *mokhazniya*, gendarmes in the employ of the Spanish military authorities.

2. *furu*. This is a collection of strings of camel's-hair yarn, roughly parallel, and cross-tied just often enough to keep the whole combination together. The *furu* is twisted about the head as a turban just as is the *thaghareft*, leaving the top of the head similarly bare. The camel's hair comes from the tribes of Beni Bu Yahyi and Metalsa. It is dyed brown for ordinary wear and red for weddings. The *furu* came in after the *thaghareft*, and like it was worn by individuals here and there in every tribe, according to personal taste.

3. *thaamanth*, a yellow kerchief, silk embroidered, worn as a turban. This is of European manufacture and introduction.

4. *arizith*, a white cotton turban (see plate 25), likewise of European manufacture. In adopting the white turban the Riffians have reached the final step of imitating the Arabs. All the previous types of headgear mentioned were distinctively if not uniquely Riffian, but the *rezza*, as the Arabs call it, in no way distinguishes them from the rest of Moroccans. It has not yet attained universal distribution, being worn only by the least conservative elements in each tribe. The fez, or *sheshia*, as it is called in Morocco, has not yet appeared except in the tribes of Galiya and Kebdana.

The Riffians in the Spanish zone will probably become Europeanized in dress before they submit completely to Arab notions of sartorial accoutrement, since the Riffians have fewer inhibitions against European civilization than against that of the Arabs. However, European dress among them is at present confined to the very few who have become officers in the Spanish army and to chauffeurs, mechanics, and the like in Melilla.

Riffians never appear in public without some form of belt and a scrip, or bag.

thaghugat is the generalized term for men's belts, which are always made of leather. The ordinary type is about two inches broad, undecorated, and fastened by a buckle in front. *thaghugat n tayish* is a special belt worn at weddings, much broader, covered with silken embroidery, and frequently embellished with tassels. *thaghugat er knenth* is a leather cartridge belt, with pockets for the clips of cartridges which fit into the ordinary Mauser, or Spanish army rifle. *thazabutch*, the scrip or leathern bag, does not hang from the belt, but is supported by a separate strap, called *iyarusith*, passing over the shoulder opposite to the side on which the bag is worn. The old style bags used in the days of the flintlock rifle were very large and contained many pockets, in which were kept powder, lead balls, emergency rations, knives, papers, and other small objects which among us would be carried in pockets. These bags were ornamented with silk embroidery and long leather fringes and tassels. (See plate 27.) The designs were both rectilinear and curvilinear, the curvilinear designs usually being floral. The bags were also decorated by great areas of inlaid colored leather, a technique which had died out but which is now being revived by Taghzuthi workmen in French shops at Rabat.

Accompanying the large bag of former times, a powder horn made from the horn of the aoudad, called the *ish n wuthath*, depended from the belt. The use of these horns has died out, owing to the advent of cartridges and the scarcity or possible extinction of the aoudad.

The bags and belts which typified the Rif of a hundred years ago were made exclusively at a village called Iyarusith in the tribe of Temsaman. The craft has long been extinct there, however, and now the belts and bags used in the Rif are made locally or are imported

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from Taghzuth. The Taghzuthis, who were craftsmen only in powder and firearms, have within the last generation taken over leatherwork and set themselves up as the foremost manufacturers of belts and bags. The Taghzuthi work is characterized by the stitching of narrow strips of colored leather diagonally in rows so as to form lines. These lines are always straight, and the designs produced by them form isosceles triangles and zigzags. Until recently white and green were the only colors employed for this purpose, but since the Spanish occupation other colors have come in, and the work has become coarser. (See plate 27.) Besides the ordinary belts and bags, the Taghzuthis now make wrist-watch straps and handbags, the former for the Spanish army, and the latter to be sent to the ports of the French zone and thence to America, and, to a lesser extent, to England and France.

Other old centers of the manufacture of bags and belts were Beni Misawr, a sub-tribe of el Khmes of the Western Arabophone Senhaja, and Beni Mohammed, situated between Beni Zerwal and el Khmes. The design on these Jebalan bags is curvilinear rather than rectilinear, and is characterized by three circles side by side on the front. The effect is produced by the stitching of leather strips, as at Taghzuth, and not by silk embroidery, as at Iyarusith of Temsaman.

Feminine Attire. Like men's clothing, the garments of women were formerly made entirely of wool. *thawthat*, the principal garment, consists of a long rectangular piece of woolen cloth. The upper corner of one end is held under the left armpit, with the lower corner falling by the left knee. The cloth is then wrapped around the body, from front to back, until it reaches the front again. A belt holds it together at the waist, and it is caught up back and front by each shoulder and fastened there by wooden pins or brooches. (See plate 26.) These brooches, called *thisghanes*, are made by Jews in Melilla, in the Jebarna section of the Shawia of Gzennaya, at Bades, and in Beni Bu Frah. The *thisghanes* consist of a triangular piece of silver or pewter, to which is attached a loose ring of the same material; there is a gap in the ring, through which the point end of the pin, of one piece with the triangle, may pass. To pin cloth together with this device, the ring is turned until the gap coincides with the pin; then the pin is thrust through the material, and the ring pressed beneath it and turned, so that it must stay under the pin. This type of brooch is not confined to the Rif, but is commonly found throughout North Africa.

thaghugat, the belt, bears the same name as the men's belt, although it is an entirely different object. The old style woman's belt is made of many cords of heavy woolen yarn of different colors caught together, and is locally considered an object of great beauty. This belt is wound around the waist many times, and a long end is left dangling behind. Ghomaran women wear broad belts of native cloth. (See plate 26.) *thaghugat n malagha*, the belt of Malaga, is a long red woolen belt with fringes at the end, manufactured in Spain and sold to the Riffians at Melilla. It is fast supplanting the heavier belt of native manufacture.

Feminine headwear is of two principal varieties:

1. *ifiran n thimgharin*, or women's braids, consist of long black threads of woolen yarn, which are braided into the hair near where it ends and then downward until they nearly touch the ground. Three of these *ifiran* are braided into each braid, and since the women divide their hair into two braids six *ifiran* are worn by each woman. The hair, supplemented by these long strands of black wool, may be left trailing or else tied around and around the head like a turban.

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2. *thashumbushth*, a cotton headcloth, tied over the bunched-up hair, is a more recent type of headdress which came in with the introduction of American cotton cloth. (See plate 26.) This cloth is generally white, although red and yellow are occasionally used. In the region where tie-dyeing is practiced a headcloth decorated in this manner is worn.

The garments just described, the *thawthat* and *ifiran*, were formerly the only garments worn by women, in winter as well as in summer. On exceptionally cold days women might occasionally put on a second *thawthat*, bringing it up over the head like a shawl.

el ḥaik is the Arab ḥaik, or woman's shawl. There is no word for this in the Riffian dialects. It is simply a square piece of cloth worn as a shawl. (See plate 26.) It is to be found in Ghomara, Western Arabophone Senhaja, Senhaja Sghir, Beni Mesduy, Targuist, all Eastern Arabophone Senhaja but Marnissa, Beni Krama, and Branes. *ḥash*, the men's ḥaik, has been given a Riffian name. This is a light thinly-woven woolen scarf worn around the neck and back of the head, and generally tucked into the neck of the jellaba in front. It is considered of Arab origin, and is distributed through Metalsa, Beni Bu Yahyi, Galiya, Kebdana, Beni Said, Temsaman, Beni Ulishk, Tafersit, Beni Tuzin, Shawia and Beni Mohammed of Gzennaya.

Since cotton cloth has come in, women's garments are losing their simple form and becoming tailored. Sleeved shirts, open at the neck and embroidered, are worn with wide trousers like those of the men and the red belts of Malaga. The result is a costume entirely different from that of a few years ago, but more decorative. This type of garment has not yet supplanted the *thawthat*, however, since the old style is still maintained by the older women and by many of the younger ones as well. As with other factors of material culture which depend on European introduction for their diffusion, the pattern of their dissemination seems to be sporadic and voluntary, and without cultural significance.

The garments of men are tailor-made by *ṭolba*, or students in the mosque, and women's garments must be made by the women themselves, although often men who have been students and have learned the art of embroidery make and embroider their wives' garments for them.

The silk with which embroidery is done is now largely European, and its dyes are not fast. Formerly all the silk used came from Tetwan, and often was not dyed until it arrived in the Rif; hence the dyes, the same as employed on wool and leather, were always fast. The Tetwan silk is still considered superior, but is increasingly difficult to obtain. There is no reason to believe that this native silk was not imported into the Rif in very early times, or since the inception of silk-worm cultivation in Morocco after the advent of the Arabs. El Bekri says that the Meknassa, a group just south of Gzennaya, paid tribute to the king of Nekor in cloth from Merv.[1]

The designs, the same as those formerly put on the bags and belts of Temsaman, are both curvilinear and rectilinear, the triangular or saw-toothed design predominating. A favorite design is a square capsule, decorated on the inside with sawteeth, and surmounted on the small ends with curved lines reminiscent of the ancient Libyan ostrich plumes. Designs found by Bates to be characteristic of the ancient Libyans are still recognizable in Riffian embroidery.[2] A favorite design employed on the hoods of jellabas and on the cuffs

[1] El Bekri, p. 187.

[2] Bates (*The Eastern Libyans*, Pl. III, and pp. 137, 139, 140) gives drawings of similar Libyan designs, mainly in the form of tattoo marks.

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is a cogged wheel with four spokes. On the hood this design is complete, but on the cuff only half of it is represented. This design is difficult to explain, owing to the utter absence of wheels for purposes of traction in the Rif, unless it be connected with a prehistoric sun-motif.

Riffian embroidery is characterized by another peculiar feature, the presence of short tufts of silk set at intervals on the borders of the designs. The tufts are much more prominent in the embroidery of the Maritime tribes of the western Rif and of the Ghomara than in that of the eastern or central Rif. (See plate 27.)

Footwear. Footwear was formerly restricted to men, women going barefoot at all times. The harshness of this prohibition was somewhat mitigated by the fact that women seldom went out of doors in winter when snow was on the ground.

Masculine footwear is divided into sandals, buskins, stilts, and clogs, and these types have a most significant and interesting distribution. There are two kinds of sandals (*thisira*), those made of *halfa* grass and those made of scrub palmetto.

The *halfa* sandals are constructed as follows: the maker braids a rope of *halfa*, about eight to ten feet long. He then ties this in a ring, and presses it to an oval representing the size and shape of the foot. The long piece, dangling from the knot, he draws between the sides of the oval so as to make a third strand in the middle, and runs what is left over and under these three pieces until the intervening spaces have all been filled in. Thus he has obtained a flat foot-shaped sole. By loosening strands, he inserts the remaining cord, still uncut, so as to form straps for attachment. The cord goes around the heel in back, and crosses itself over the toes, not going between any of the toes. The loose end is cut to a convenient length, and when the sandals have been put on and the cord tightened, it is tied at the cross in the front-straps. This makes an extremely convenient and durable sandal, easily put on and taken off, and one that will not slip on rocks or come off unexpectedly. (See plate 28.)

The palmetto sandals are made as follows: the maker braids a long cord of palmetto leaves, and coils these into a flat oval; then with a thinner cord of the same material and a wooden needle he sews the sole together from side to side; the resultant sole is the same type as that of the rope sandals worn by the Basques and by many Spaniards. This sole is, of course, but one braid in thickness, and is not nearly so durable as that of the *halfa* sandal.

The palmetto sandal differs from the *halfa* type not only in the construction of its sole but also in its attachment to the foot. In the palmetto type the cord left over from the sole is cut free, knotted at one end, and then run through the sole from beneath at a point between the great and second toes. From here it is looped through one side of the sole, carried around so as to form a heel-strap, looped through the other side, and attached to itself at a point two inches from where it emerges from the sole, between the toes. This attachment may be spliced in and permanent, or tied on and temporary, permitting later adjustment. The straps on the *halfa* sandal are always tied so that they may be adjusted later. (See plate 28.)

The toe-strap sandal is much easier to slip on and off than the cross-strap type, but is not nearly so durable. The sole wears out much more quickly than that of the cross-strap type, and the toe-strap is likely to pull through the sole. Thorns and other sharp objects pierce the toe-strap type, but seldom penetrate the cross-strap variety.

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CLOTHING 2

Ghomaran woman with haik and leggings

Ghomaran girls, wearing haiks and broad cloth belts

Taghzuthi woman wearing *thaurthat* with brooches

Taghzuthi woman with *thaurthat*, showing attachment

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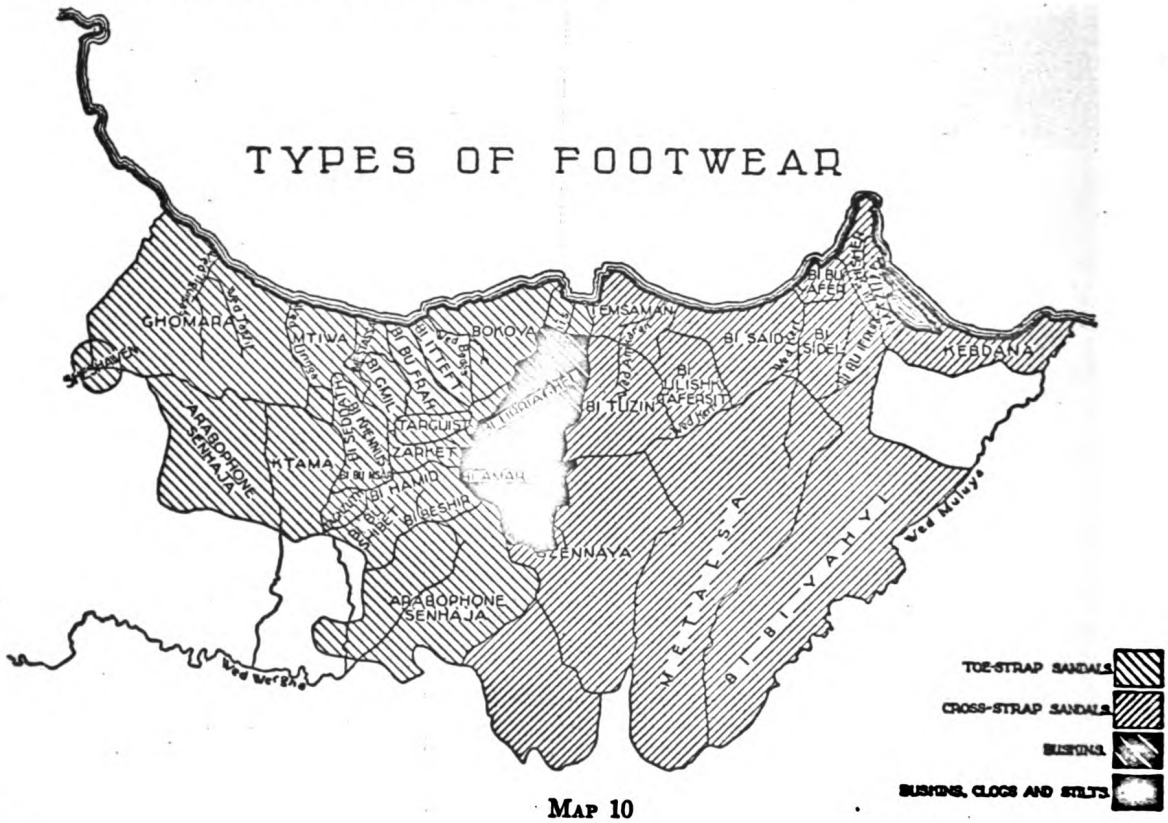
Both these types are so easily made by everyone in the regions in which they are found that their life is of small moment. In other regions, however, where they must be purchased, they are valued more, hence the cross-strap variety alone is bought.

The *halfa* sandal is distributed through Branes, Beni Mohammed, Khebaba, Shawia, Metalsa, Beni Bu Yahyi, Beni Ulishk, Tafersit, Beni Tuzin, Beni Bu Yahyi Galiya, Kebdana, Beni Said, and Temsaman. The palmetto sandal is found in Ajdir of Beni Urriaghel, Bokoya, Beni Hadifa, all the Western Maritime tribes, Targuist, Beni Mesduy, all the Senhaja but Branes, and all Ghomara.



MAP 10

airkasen are leather buskins. In winter the mountaineers of the central Rif tie their feet up in cloths and step into square pieces of raw cowhide or wild-boar hide, with the hair out. These squares of hide are then drawn up about the toes and ankles and sewn into place with thongs. As the leather hardens the holes gape open permanently, so that the *airkasen* can be taken on and off without inconvenience. This type of footwear is found among the Braber and Shluh; among the Glawa tribe in the Atlas it has developed into a variety of moccasin. This further development is not, however, found in the Rif. The Riffian buskin is more nearly comparable to the proto-moccasins found in the Basket-maker remains in the American Southwest,[1] and represents the first step toward the manufacture of a moccasin. The North Albanian *opinga* is practically the same thing. The *airkasen* are worn in

[1] Judging from observation of specimens in the Peabody Museum of Harvard University, collected by Noel Morss.

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Beni Amart, all Beni Urriaghel but Ajdir, Temjunt, Iherrushen, Ikhuanen, Inhanahan, Iherrassen, and Bured.

Of these types of footwear tradition has it that the crude *airkasen* were the earliest and were formerly worn over a much wider area than at present;[1] and that sandals, of both palmetto and *halfa*, were introductions from outside.

In recent times Arab slippers with turn-under heels, called by the Riffians *iherkusen*, have become somewhat popular in the Rif. They are an inferior type of footwear, owing to the difficulty of keeping them on without shuffling. Of imported shoes the only type which has become at all popular is the American sneaker, or tennis-shoe, which has found many users, especially in the east around Melilla and in the region of Ajdir. French army brogans are sometimes worn by men in military service, but are generally cut away at the heels so that they can be taken off without trouble when entering a house.

Beside these normal types of footwear, and their modern rivals, one finds two specialised types used only in rainy weather:

ikabkaben, clogs, are made from single pieces of wood, flat, shaped to the foot, and carved so as to have two cross-props beneath, running at right angles to the axis of the foot, one beneath the ball of the foot and the other under the heel. These clogs are attached with straps made of dried bull's penis, after the same style as the attachment of the western or palmetto type of sandal. When used by women this attachment is thought unseemly, and a piece of cowhide is nailed across the front to serve as a toe.

mawus, stilts, are made of single pieces of wood, chosen so that a fork low down on the shaft will serve as a foot rest. They are worn in wet weather and in snow, and are used as playthings by the children in all weather. The stilts and clogs have an identical distribution: Beni Amart, Mountain Urriaghel, Temjunt, Ikhuanen, Iherrushen, and Inhanahan.

In addition to these types of footwear, a peculiar form of legwear, found in the west, may be mentioned. The women of the region of Sheshawen and of the Ghomara wear leather leggings made of stiff hide, tied around the calves and ankles with straps. (See plate 26.) These are worn to protect the legs from the brush, for women spend a great deal of time on the mountains cutting brush for charcoal, a task which in the Rif properly belongs to men. Curiously enough, women who wear these go barefoot. These leggings are found in Ghomara, Western Arabophone Senhaja, and Ktama (formerly Taghzuth).

TATTOOING

Tattooing in the Rif is practiced upon women as a prerequisite for marriage, and, less frequently, for the same purpose upon men. When a girl is sure that she is to be married, that is, when all arrangements for her wedding have been made, her family calls in an old woman of the same *awar*, or sociological family, who is proficient in the art; if there is no such old woman available one is called in from outside. If the artist is related to the victim no fee is paid, otherwise a small sum is given her by the girl's parents.

The old woman collects lamp-black from the bottoms of cooking pots, and mixes this with juice squeezed from the leaves of broad-beans. She sets to work with a knife and needle, working both by pricking and incising the skin. She works fairly rapidly so that the wounds will all be healed on the final day of the wedding. It is considered shameful for

[1] Marmol (chap. 79) says that the Beni Bu Shibet wore these buskins.

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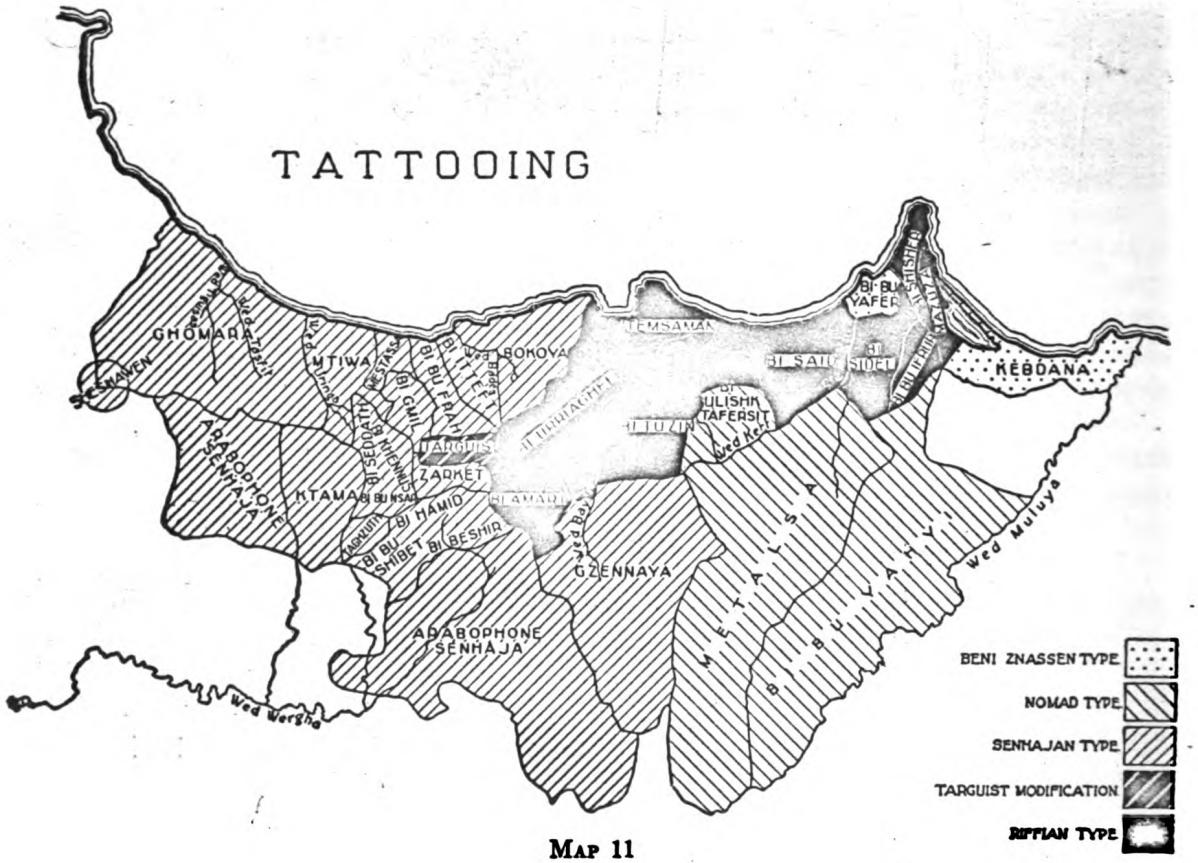
a woman to go to her husband without having been tattooed, and it is likewise disgraceful for a young girl to be tattooed who is not about to be married.

On plate 29 are shown the various types of tattooing designs executed in the Rif. In numbers 1, 2, 4, and 6, the line running down from the median point of the lower lip reaches to the point of the chin, and in number 1 the two lines running obliquely from the corners of the mouth terminate on the line of the lower jawbone halfway between the gonial angles and the chin. In number 2 the line bisecting the forehead runs from trichion to glabella. In number 3 the central cross is made on the left side of the nose between the bridge and the wing, in the same position as that depicted in number 6, for men.



MAP 11

The distribution of these various types is as follows:

Type 1 (*Senhajan*). All Gzennaya but Iherrushen, all the Senhaja except Bi Mesduy; Bokoya, Beni Itteft, Beni Bu Frah, Mestassa, and Mtiwa. It is also employed among those of the Ghomara who practice any tattooing at all, the occurrence of this trait there being sporadic and wholly voluntary.

Type 2. This is the central Riffian method, old style, practiced until within a generation ago. It was used in Beni Urriaghel, Beni Amart, Iherrushen of Gzennaya, Temsaman, Beni Said, Beni Tuzin except el Azib of Meidhar, northern Beni Ulishk, and Galiya except Beni Bu Yafer.

Type 3. This is employed by the Beni Bu Yahyi, Metalsa, southern Beni Ulishk, Tafersit, el Azib of Meidhar of Beni Tuzin, and (during recent years) part of Galiya.

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Type 4. This is called Zenatan, and is characteristic of the Beni Znassen. In the Rif it is employed in Kebdana and Beni Bu Yafer. It has likewise been used in Targuist in recent years as a partial imitation of the central Riffian technique. In Targuist its identity with the Zenatan type is purely a coincidence.

Type 5. The single cross on the left side of the nose is employed by men in the same area as that covered by the occurrence of Type 3 among women, but extends its distribution farther than the corresponding female decoration. It is found in Khebaba and Beni Mohammed of Gzennaya, sometimes in Shawia of the same tribe, in Mazuza, Ait Shisher, and Kebdana. Throughout this area it is optional, except in Khebaba, where all the men use it.

Type 6. This is the modern rendering of Type 2, the modification being in the use of a cross instead of a hatched line on the forehead. Type 6 has come in during the present generation, totally displacing its predecessor, but losing ground in Galiya, where it is gradually being replaced by Type 3.

Where the tattooing on the face is of Type 1, 3, or 4, the rest of the body remains without permanent decoration; but where the facial tattooing is of Type 2 or 6, that is of central Riffian pattern, the body is likewise tattooed. Number 7 shows the design on the abdomen, thorax, and neck, number 8 on the legs, — a stripe up each side and a cross over the ankle, — and number 9 on the forearm. As a variant of number 9, and considered very stylish, are forked antennae coming off the corners of both the distal and proximal terminal bars. The tattooing on the neck reaches up to the chin, where it joins with the tattooing of the face in one continuous design reaching from the center of the lower lip almost to the navel. Care is taken in tattooing the upper of the two hatched single lines just below the breasts not to have the design encroach upon the actual skin of the breasts.

USE OF HENNA

Henna, that universal cosmetic stain, is used throughout the Rif, Senhaja, and Ghomara, as well as by all other peoples of Morocco. On each day of the wedding feast, the bride thrusts both hands and both feet up to the wrists and ankles into a bowl of stewed henna leaves. The groom similarly stains his hands, but not his feet. The Riffians make no geometric lines with this henna, as do the Arabs and Atlas Jews, but simply daub it on until the whole extremity is colored a consistent reddish-brown.

It is said that in the Rif henna was not used in former times, but that apple leaves and green walnut shells were employed in place of the henna leaves, which even today are entirely imported, the chief source of supply being the tribe of Dukkala, on the Atlantic seaboard of French Morocco.

Although henna is today distributed throughout North Africa, the presence of this definite tradition would indicate that its diffusion into the Rif took place in fairly recent times, and that in the remoter sections its use was preceded by an imitative employment of other materials.

Another use of henna distinct from all ideas of beautification is as follows: when a man has shown himself cowardly in war, the women of the village seize him, rip off his shirt, and smear his back with the stain.

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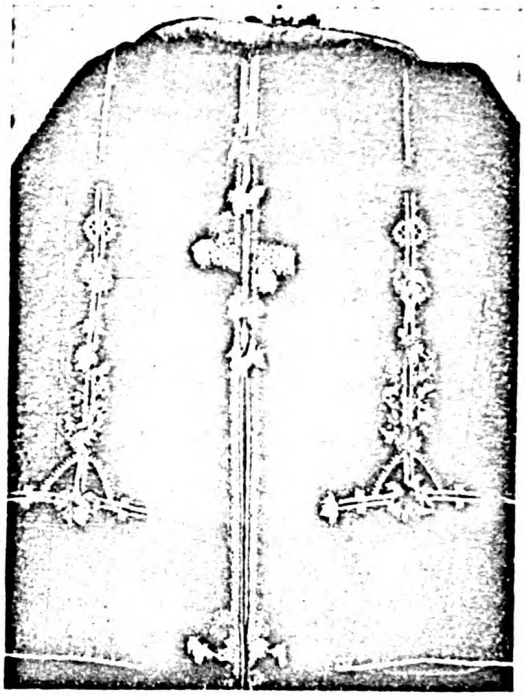
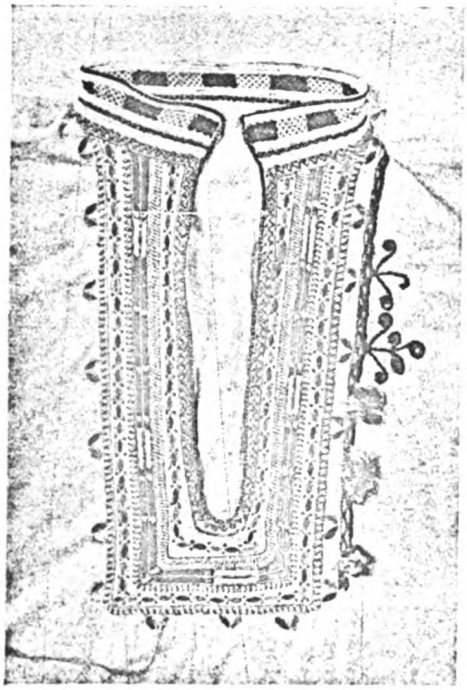
CLOTHING 3

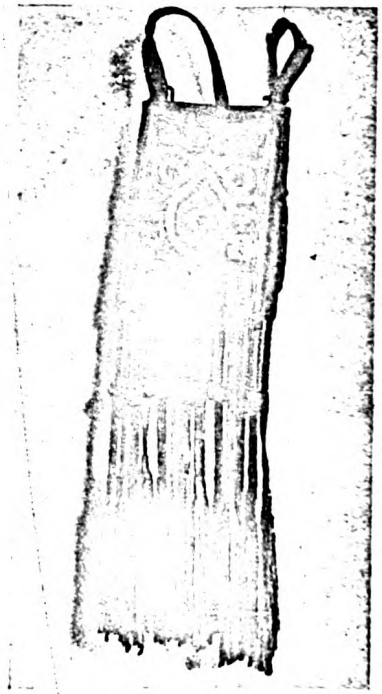
Taghzuthi scrip



Jellaba embroidery, Temsaman



Embroidery on woman's shirt.
Beni Urriaghel



Old Riffian scrip

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USE OF KOHL

Kohl, called *thasutch*, is produced locally, and not imported. Pedlars and women find it in lumps in deposits. It is used in powdered form by women to brighten their eyes and darken the lids and lashes. Although the women apply it to their eyes whenever they wish to look particularly attractive, its use is, nevertheless, chiefly confined to and associated with weddings. Before the bride is brought to her husband's house she is treated to an application of kohl. Kohl is used by women, especially in weddings, in all tribes and regions under consideration with the following exceptions: Mountain Urriaghel, Ikhuanen except Tainest, Iherrushen except Telmest, Temjunt, and Beni Amart.

In certain regions kohl is likewise applied to the eyes of the groom, on the occasion of the final night of his wedding. This is done in the Senhaja, the Ghomara, Targuist, Beni Bu Yahyi, and Shawia.

Besides henna and kohl, rouge made of local products is used by women dancing at weddings. It is applied to the lips.

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CHAPTER VI

SOCIAL ORGANIZATION

KINSHIP GROUPS AND POLITICAL DIVISIONS

THE smallest social grouping in the Rif is, of course, the biological family, consisting of father, mother, and offspring; but the importance of this fundamental group is often obscured by the large family group called *awar* (plural *iwaren*), or "vein." [1] The *vein* consists of a father, his wives, descendants, and descendants' wives, and his brothers, their wives, descendants, and descendants' wives. Since Riffian society is patrilineal and families are usually patronymic, daughters who have married into another *vein* become affiliated with the group into which they have married, and offspring of these daughters are considered to belong to their fathers' *veins*. When the brothers composing the oldest generation in a *vein* die, it splits into as many *veins* as there were brothers. Thus the sons of each deceased brother become the brothers forming the elder stratum of the new *vein*. In this way during the course of generations a single union of a man and his wife may give rise to numerous related *veins*.

These related *veins* collectively take the name of *ighs* (plural *ikhsan*), or "bone." [2] The *bone* is, however, something more important than a mere collection of related *veins*. In regions of sedentary life it generally takes the form of a village, or politically independent section of a village, and may include *veins* descended not only from the eponymous ancestor of the *bone* but also from strangers who have been adopted into the *bone*. The arrival of these strangers who become ancestors of spurious *veins* is due to the Riffian custom of selling property in order to pay fines or blood money assessed by the governing body. A man who has sold all his landed property and livestock in order to meet such an obligation feels ashamed to remain in his own village and often fears reprisal for his offence, and migrates, generally swiftly and secretly, to some other part of the Rif. When he has arrived at a sufficiently distant village, he hires himself out to a landowner in that village, or, if he seems to be a valuable potential adjunct to the village's military forces, is given land by popular subscription. He thus becomes a member of the *bone* into which his ill-fortune has thrust him, and is expected to marry into this *bone*, generally taking as wife a daughter of the man who first employed and sheltered him, if that man happens to have a daughter available. The newcomer and his wife become the forebears of a new *vein* in the *bone*, and this new *vein* may in turn split time after time until the *bone* contains a large number of alien *veins*. The *veins* descended from strangers exist under the disadvantage that they are not allowed any part in the government,[3] but are at the same time expected to contribute

[1] "Vein" is the literal translation of this word. I have discovered no sociological term in the English language exactly comparable to it, and hence have decided that to translate it literally, and to render this translation consistently throughout, will be less confusing to the reader than to leave it in its Berber form. In describing a highly complex social organization such as is found in the Rif clarity is of greater importance than philological exactitude.

[2] "Bone" is the literal translation, and has been retained through lack of any exact equivalent, although either "sib" or "gens" might be loosely applied. The endogamic character of the bone is not implied in either of these terms.

[3] Wherever the Riffian type of government is found, this is true. Under the Arab system the stranger restriction naturally cannot apply.

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their full share to any martial activity in which the *bone* participates; regarding this lack of balance as unfair, members of alien *veins* split off from the parent *bone* whenever possible, forming new *bones* with their own local government, and, in the course of time, with equal consideration in the larger governmental institutions. The new *bone* thus created may take as its name that of the wife of the adopted alien ancestor, since it was his wife and not he who belonged to the original indigenous strain. In that way one may explain many of the matronymic *bones* which occur frequently in the Rif.

Splitting of one *bone* into several may occur, however, without the necessity of alien immigration. If the *bone* becomes too large to be conveniently administered, if discord arises between two or more parties of *veins*, or if some of the *veins* migrate, voluntarily or through pressure, to a new locality, the *bone* splits up.

Sometimes a *vein* divides, some of the brothers staying at home and others migrating. In this case the original *vein* may never expand sufficiently to take on the status of a *bone*, whereas the brothers who migrated may have had numerous progeny and have become, in a relatively short time, the ancestors of separate *bones*. An example of this is the family of *Oshannen*, or jackals, a *vein* of the *bone* of Tiddest in Ikhuanen of Gzennaya. Two members of the Oshannen migrated, one going to Temsaman and the other to Beni Said. Now, the Oshannen of Temsaman and the Oshannen of Beni Said are not only separate *bones* in these tribes, but have furthermore risen to the highest administrative authority in them. The Kaid Bu Kaddur of Temsaman and the Kaid Moh Amar n Woshun of Beni Said are both descendants of the original migrants from the *vein* of Oshannen of Tiddest.

A different situation is found in the tribes of Beni Tuzin, Metalsa, Beni Bu Yahyi, Beni Ulishk, Tafersit, Galiya, Kebdana, and, to a slight extent, Beni Said. Among these tribes are found both *veins* and *bones* composed of strangers called *igharbiyen*, reputed to be of Arab origin. The Igharbiyen are allowed an equal part in the government, and are in no way discriminated against as are members of alien Riffian *veins* among the *bones* of the central Rif. In Beni Said, however, an exception to this is found. The Igharbiyen among the Beni Said are few in number, and are subject not only to the restriction against alien *veins* which is found in the central Rif, but also to that against their *bones*, which are not allowed a part in higher councils.

Families of Zenatan origin in Beni Tuzin, Beni Ulishk, Tafersit, Metalsa, Beni Bu Yahyi, Gzennaya, Temsaman, Beni Said and Beni Bu Ifrur of Galiya, are subject to no discrimination whatever. The single families of Zenata in Gzennaya, Temsaman, and Beni Bu Ifrur are given the standing of *bones*.

Although one finds in the Rif numerous *bones* of immigrant groups, both Igharbiyen and Zenata, no trace of any moiety organization is visible, even among the Beni Tuzin, whose very name, *Asht Uzin*, means, in their own language, "the children of the half." [1]

Next after the *bone*, which is a true family group and is dependent upon kinship and adoption, comes the division known as *arrba'* (plural *roboa'*), derived from the Arabic word meaning "a fourth." In the present volume it will be called "canton." [2] The *canton* is a group of *bones* which may or may not be related in blood; it occupies a single geographical

[1] See p. 36, n. 7.

[2] Here again is a term with no ready equivalent. I have avoided "fourth," the literal translation, because such a designation would imply that it is greater than the *fifth*, when the opposite is true. Furthermore, there is no extant valid reason for the name *fourth* in Berberized Arabic. "Canton" seems to express the idea of geographical and political unity without an implication of kinship, and hence is applied to the present social phenomenon.

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unit-area, such as a valley with its contiguous mountains up to their crests. Relationship between the *bones* composing a *canton* depends on whether or not the *bone* of oldest standing has split to form other groups, and whether or not immigrant *bones* have entered or been formed by the enlargement of *veins* descended from strangers. In most *cantons* one finds both related and unrelated *bones*. Loyalty within the *canton* is seldom very strong, and in many if not most instances wars have been fought within *cantons*.

Beyond the *canton* one finds a still larger division, the *thakhemesth* (plural *thikhemesin*), or "fifth,"[1] so called because each *thakhemesth* in the tribe receives one fifth of the booty after a successful tribal war, and because tribes which are divided into *fifths* always contain five such divisions. This group again is dependent upon geography rather than upon blood, although many *bones* in the same *fifth*, even in different *cantons*, are allied by marriage and hence in war.

Beyond the *fifth* is the tribe, called *thakabitch*, a word derived from the Arabic *ḳabila*.[2] In most cases the tribe is equivalent to one *fifth*, and the latter word is not used, the term *thakabitch* being applied directly above *canton*. The tribes divided into five *fifths* are Galiya, Temsaman, Beni Urriaghel, and Gzennaya. Those of Galiya are Mazuza, Aït Shisher, Beni Bu Yafer, Beni Bu Ifrur, and Beni Sidel. Those of Beni Urriaghel are Aith Yusuf u Ari, Aith Abdullah, Aith Ari, Imrabten, and Beni Bu Ayesh. Those of Gzennaya are Beni Yunes, Beni Asem, Beni Mohammed, Imsdurar, and Asht Aru u Aissa. In naming these *fifths* I have given the names most commonly known to the outside world, Berber or Arab as the case may be. In Temsaman there are really but two actual *fifths*, Truguth and Hathith n Temsaman. The other three so-called *fifths* are merely combinations of two *bones* each, classed in pairs for the sole purpose of dividing spoils. These are Asht Daud and Sidi Shaib u Ftah, Bu Thinar and Oshannen, and Amzauru and Tizi Azza. They are given this special standing because Temsaman is too powerful to be relegated to the position of a single *fifth*, and because these *bones* are able to support their position by arms.

SOCIAL CLASSES

The Riffians, democratic as they are, nevertheless distinguish several social classes between which marriage is forbidden. The vast body of Riffians, whether descended from old Riffian stock, from Senhaja, Zenata, or Igharbiyen, consider themselves socially more or less equal, and do not hesitate, when exogamy is desirable for purposes of alliance, to take wives from other *bones*. Yet there is a definite lower class, considered to be not only immigrant but Negroid as well, with which alliances are, in some tribes (Gzennaya, Beni Amart, Beni Urriaghel, and Temsaman), strictly forbidden, and in others are followed by the social debasement of the Riffian marrying among them. These are the so-called *imazilen* (singular *amazil*) or "Shameless Ones,"[3] who carry on the three hereditary trades of blacksmithing, piping at weddings, and acting as public criers, measurers and weighers in markets. All these trades require a degree of publicity, of self-exposure in crowds — and since the Riffian

[1] The literal translation, "fifth," applies so well here that I have retained it. Most authorities call this division a "fraction," but the latter term is frequently confused in meaning, being also given as an equivalent for *arrba'*, and not carrying with it a clear picture of what particular sub-division of the tribe is meant.

[2] Here the word "tribe" forms a sufficiently exact equivalent.

[3] The chief quality of this class, which the Riffians always mention first in describing them, is their lack of shame. Hence the term "Shameless Ones" will be used throughout to designate them.

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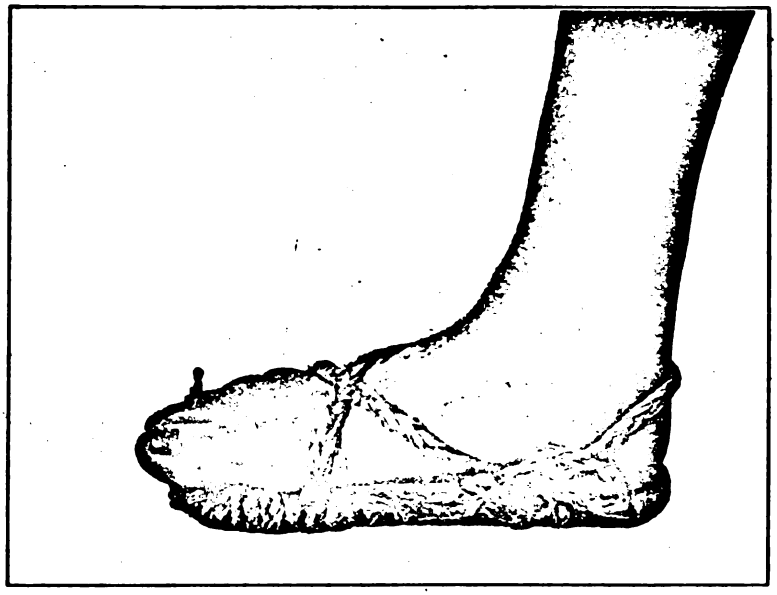
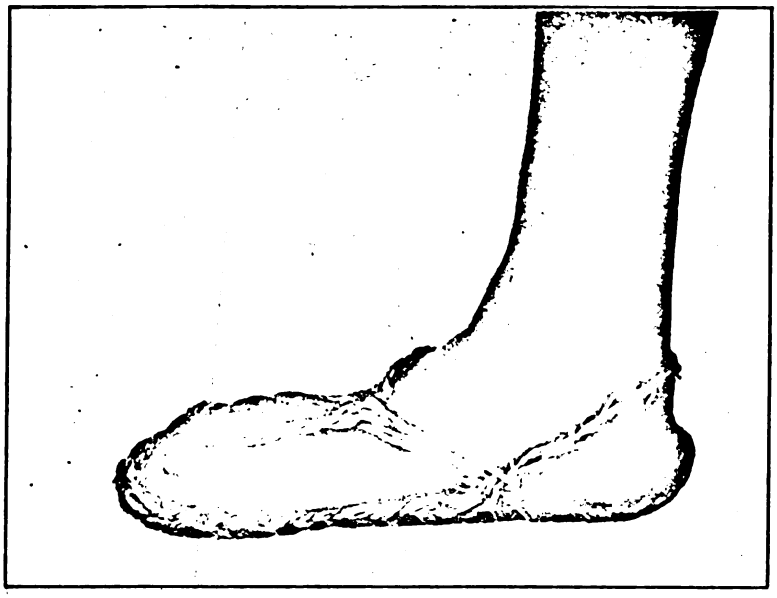
FOOTWEAR



Cross-strap sandal, made of *halfa*. Galiya



Toe-strap sandal, normally made of palmetto fiber. (This particular specimen was made of American marsh-grass by a Riffian)

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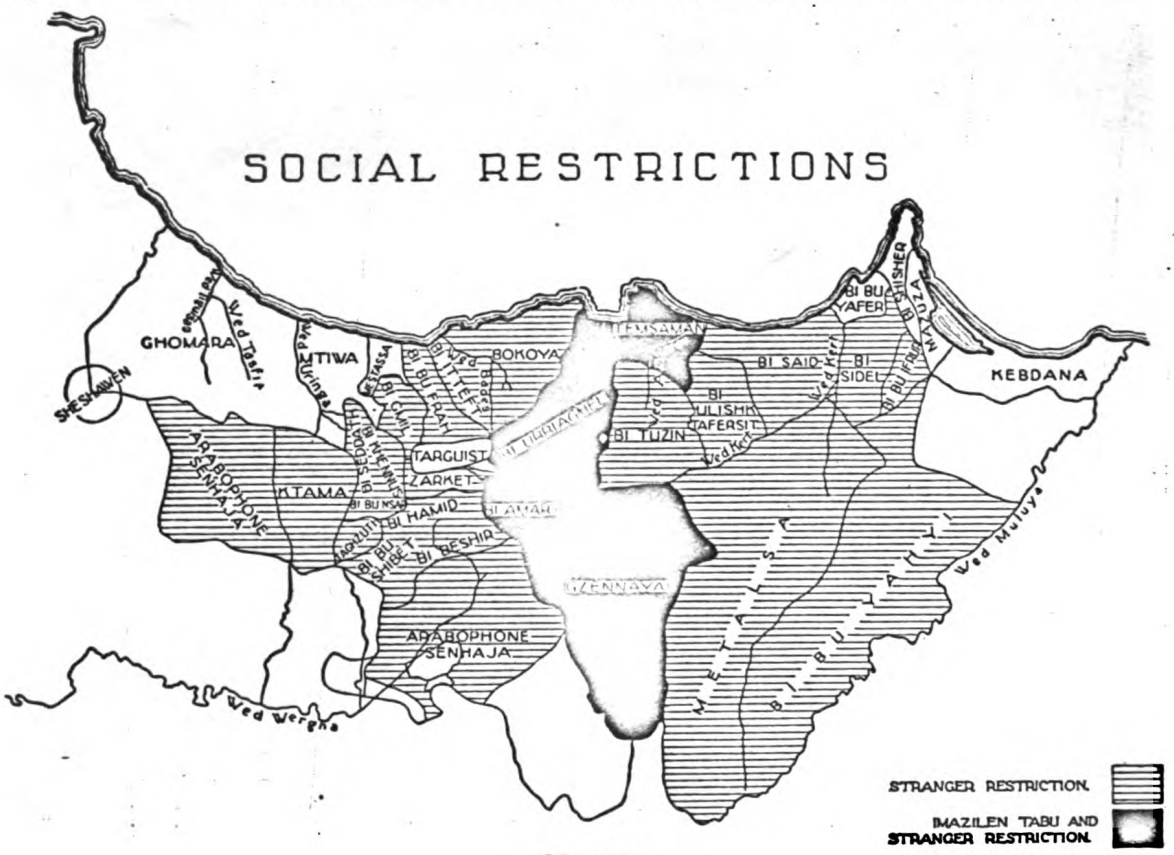
is as a rule extremely modest, and considers it degrading to expose himself to the public eye in any but a governmental way, it is only natural that he should look down upon a social class which practices trades that he himself would be ashamed to undertake, despite the fact that these trades might require greater intelligence and skill than his own manner of living.

Blacksmiths are traditionally an invading, or one should perhaps rather say infiltering, group, concentrated today in the east and west, and sparsely settled in the central tribes.



MAP 12

The chief centers of blacksmith families are Azgangen in Beni Bu Ifrur, Imasinen in Mazuza, Mauru in Beni Said, Anual in Beni Ulishk, Tafersit town, Tizera n Jkhatha and Bu Hfora of Beni Tuzin, Khebaba, on the eastern edge of Gzennaya, Tarosht in Iherrushen of Gzennaya, Beni Msita and Ijaonen of Beni Amart, el Malimin of Targuist, Beni Mesduy, Snada of Beni Bu Frah, Garmaleth of Zarket, Tamadith of Beni Bu Nsar, Beni Berber, Aghbal of Beni Bu Shibet, and Tezarin, on the border between Beni Amart and Beni Beshir.

Only four centers were attributed to the tribes of Gzennaya and Beni Amart (two to each), and none to Beni Urriaghel. The smiths of Khebaba, makers of the famous Khebaba knives, and of Tarosht have been in the country so long that no one remembers whence they came. They are thought to antedate entirely the smiths who live in the regions to the east and west of them. The smiths of Beni Msita and Ijaonen, belonging to one family

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called the Ulad el Hani, claim Arab origin, although they are plainly Negroid, and speak Arabic domestically, employing *thamazighth* only with outsiders. They are at present considered the best smiths in the Rif.

While the four groups of smiths just mentioned are all sedentary, the smiths to the east and the west are often journeymen, going in winter to the encampments of Metalsa and Beni Bu Yahyi, who have no local craftsmen, and to villages of Beni Urriaghel, Gzennaya, and Beni Amart to set up shop. These immigrant smiths are distinguished from the local ones of long standing by the fact that they send home for their women and keep up a permanent connection with their home bases. They are considered by the villagers as temporary residents.

All the smiths, both sedentary and itinerant, have certain tasks and duties. They must go to Melilla or to Fez from time to time to buy iron. This gives them an opportunity to see something of the outside world and to become more sophisticated than most of their social superiors. They go to markets, in which they set up shop and shoe horses and mules brought to them; they are given complete charge of the secular slaughtering of domestic animals.

At this point a distinction might be made between the various types of slaughtering. Although the technique is the same in all cases, except with wild animals killed in hunting, the sentiment differs widely. Sacrificing, or killing an animal at a religious feast, at a house-building, or as an act of magical compulsion in warfare, is an honorable task and must not be performed by one of the Shameless Ones. This is the duty of the father of the household, the head of the *vein*, or of the schoolmaster of the *bone*, according to how large a group is concerned. It is highly desirable in any case that it be done by a literate man. The flaying and cutting up of game is subject to no restrictions as to person, the hunter usually doing it himself. The slaughtering and flaying of domestic animals for consumption alone, without religious or magical connotation, is considered a shameful and unclean task, to be performed by a man of good standing only when he cannot find one of the Shameless Ones to do it for him.

Pipers,[1] or *imṯhiyazen* (singular *amṯhiyaz*), play upon the *zammar*, a reed instrument consisting of double pipes of cane, with numerous stops and with a fixed bass, and ending in the horns of the aoudad. They are as debased as the smiths, if not more so. The pipers are concentrated at Sidi Bu Daud and Sidi Shaib of Temsaman, Bu Hfora and Meidhar of Beni Tuzin, Ighza Urieri and Mauru of Beni Said, Anual and Sidi Misaud of Beni Ulishk, Tafersit, Nador, Azgangen, and Suk el Arbaa of Beni Sidel.

They wander over a wide territory, playing at weddings and other festivals. The area covered by them in pursuit of trade may be seen on the map entitled Marriage Traits No. 2 (p. 137); under the topic of weddings [2] their functions will be discussed more fully. Their social position is if anything lower than that of the blacksmiths, and whereas the latter are sometimes trusted and in a way respected, musicians never are. Neither are allowed any part in the government.

Market Criers [3] and **Weighers,** *iberraḥen* (singular *aberraḥ*) and *ishegairen* (singular *ashegair*), who form the third class of Shameless Ones, both come from the same families,

[1] So translated here because of their profession.

[2] See below, p. 138 *seq.*

[3] The ordinary meaning is "public criers." I have given them the English equivalent "market criers" because the market is their seat of operation.

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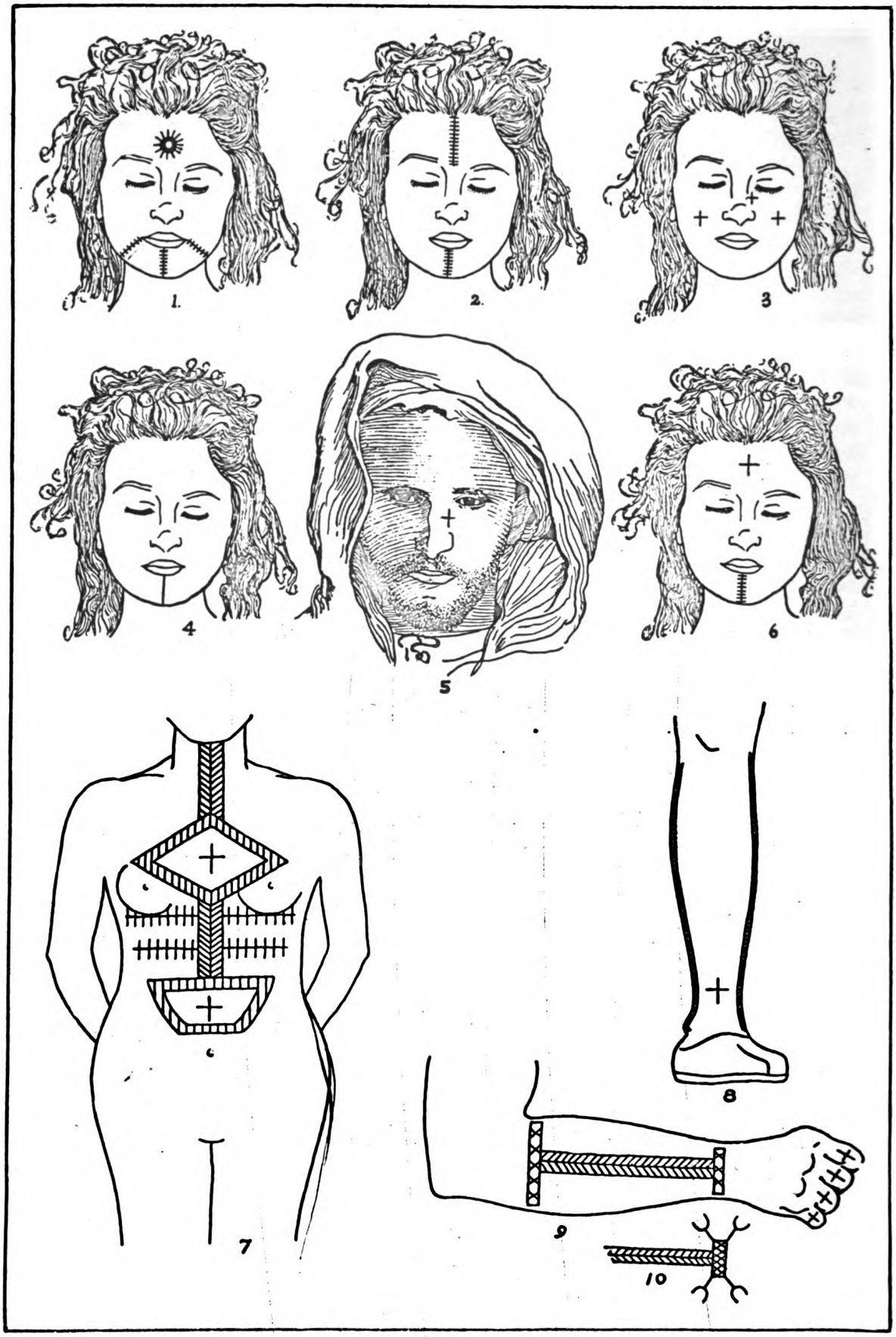
TATTOOING DESIGNS



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from the villages of Ifergugen and Ibettoyen of the Beni Tuzin. They wander all over the Rif, establishing themselves temporarily near markets, in which they perform their duties. There is one of each profession settled within convenient distance of each circle of markets in each tribe or group of tribes. Being strictly endogamous, they send home to Ifergugen and Ibettoyen for their women; they cannot even intermarry with other Shameless Ones.

Although agriculture is considered the most dignified and worthy of occupations, skilled trades such as those of carpenter, weaver (where weaving is done by men), gunsmith, powder-maker, and professional mason are not despised. A man plying one of these trades does not ostracize his family by so doing, or prevent his daughters from marrying into good families. Such trades are not hereditary as are the occupations of the despised castes.

The social position of the Jews is not comparable to that of any other group living in the Rif. The Jews, while living in the places settled by them, such as Galiya and Beni Bu Frah, form distinct colonies which in the past were not often molested. Jews going into other regions could formerly do so only under the protection of some important man in that place. The patron of the Jew considered the Jew as his bondsman or slave, while the Jew regarded the contract as merely a commercial one. The Jew was allowed to work at some trade, but must turn his receipts in to his patron, who gave him his food and lodging and a certain amount of money besides. The patron was held responsible for the Jew's safety and protected him against aggressors. Even under this type of contract Jews were able to enter only such marginal regions as Jebarna of Gzennaya, Ajdir, and, under the aegis of the Ikhemrijen, Targuist. They would not venture, in recent times at least, into the mountains of southern Beni Urriaghel, into northern Gzennaya, or into Beni Amart. For one to do so would have resulted in his death. The Riffians, in common with other Mohammedans, consider it a desecration of gunpowder to shoot Jews, killing them only with stones and knives. Since the Spanish and French occupations the rôle of the Jew has of course changed. He is at present allowed to go to markets to trade, and is not ordinarily molested.

Negro slaves are so rare in the Rif that it can almost be said that Riffians do not recognize the existence of slavery. The Ikhemrijen of Targuist have several, and one is owned in Ajdir. There may be others, but I have not seen or heard of them.

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CHAPTER VII

GOVERNMENT AND WARFARE

REPRESENTATIVE COUNCILS

RIFFIAN government is a highly complex system based on the principles of superimposed representative councils. The smallest and least important of these is the *asht arbain n dchar*, or village council,[1] which concerns itself with the affairs of its own *bone* only. The second is the *asht arbain imkaranen*, or council of the great,[2] which has charge of the administration of the *canton*. Each member of the latter council is called by the title *amghar* (plural *imgharen*), or "Councillor"; these councillors go as units to the tribal council,[3] called *ayarau* (plural *iyarawen*).

The village council, or council of the *bone*, is composed of two or three boys from each *vein* which claims patrilineal descent from the common founder of the *bone*. *Veins* descended from incoming or adopted strangers are not allowed to be thus represented. The boys are chosen by the members of the council of the great, supposedly by virtue of their superior intelligence and promise of future ability. The element of personal favoritism naturally enters into the choice in many cases. These boys meet together in the village mosque, elect a *mokaddem* (plural *mokaddemin*), or "moderator,"[4] and judge cases of minor misdemeanor brought before them. Although the cases given them are unimportant, their authority is real and their elders see that their decrees are enforced.

The membership of the council of the great is indeterminate in number, but seldom exceeds three or four from each prominent *bone* of long residence in the *canton*. There are two kinds of *bones* which do not send members to this council, those of long standing which are poor and of little military worth, and those formed by the cleavage of *veins* sired by outsiders. When a *bone* of alien origin is new and the memory of this origin is fresh in the minds of all, it cannot participate in the government of the *canton*, but after a number of generations, when such memories have become dim and the *bone* has come to be considered indigenous, it may be allowed to send its councillors with the others. The selection of councillors to be sent from each *bone* is made by the old men who frequent the common mosque of the *canton*. These men are too decrepit to serve, but all of them at one time during their younger years were councillors. Thus the councillors perpetuate themselves: when they are too old to be of active use in the council they dictate who shall succeed them. This being the case, it is only natural that the succession should become to a certain extent hereditary. An ex-councillor is likely to name one of his sons to take the office he formerly held, or if he has no son competent for the task he nominates a nephew, brother, or grand-

[1] This means literally "The sons of the forty of the village." Where the idea of the number forty comes from is a difficult question. It recurs time and again in Berber lore as a conventional number.

[2] The literal meaning is "the great sons of the forty."

[3] This term will also be used to signify the place in which the council is held.

[4] This Arabic word, which is applied to a number of different types of officials, both civil and religious, may in this case be translated as either "moderator" or "spokesman." In the *Village Council* only the former term applies, but in the *Council of the Great* either may be used.

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son. In this way certain *veins* within each *bone* manage to control the seats of that *bone* within the council of the great, but if a man of great ability arises in a *vein* of eligible standing which has not previously sent a representative, the old men may be forced by expediency to send him rather than a member of their own *vein*, who may be of mediocre ability. Sometimes, however, a councillor is chosen who is exceptionally stupid and incapable of expressing himself well in deliberations. Such a councillor is chosen for his physical strength and fighting ability, since deliberations of these bodies often end in pitched battles; two or three intelligent men may be enough to bear the brunt of the mental labor involved, and the others can serve as valuable henchmen in a crisis.[1]

The council of the great meets in the common mosque of the *canton*, under the olive trees by a stream, in the house of one of its members, in market (see plate 30), or wherever it pleases the members to convene. The councillors elect a *mokaddem* as moderator and spokesman.

The councillors of each *canton* in the tribe go together, in time of crisis, to a place agreed upon, called the *ayarau* (which means also "tribal council"). This meeting place has no fixed locality, but depends upon mutual convenience. The councillors enter by groups and sit down on the ground huddled together, the various groups forming a circle. Each *fifth* occupies a section of the circle and its councils of *cantons* are contiguous. The moderator of each council talks, generally in a whisper, to its members, until a common attitude in regard to the subject of the meeting is agreed upon. The moderator now having, as it were, received the instructions of his constituency, approaches the center of the circle, where he squats down with the other moderators in a nuclear circle. The councillors left on the outer ring finger their rifles and generally express their readiness to defend their spokesman in case he enters into a violent argument; the moderators likewise hold their gun butts against the ground with their fingers clasping the trigger guard. They discuss the matter at hand, all talking at once or whenever they please, since there is no chief moderator at this meeting, and for one member to bid another be silent would be considered ample excuse for murder. The moderators of a *fifth* usually agree within themselves, and the argument soon devolves into consideration of how many *fifths* favor one opinion and how many the other. A moderator of one *fifth* may lead aside an influential moderator of another and whisper to him outside the ring of councillors, trying to win him over to his way of thinking by arguments and promises of bribery. If the moderator so entreated succumbs to this persuasion he returns to the central ring and tries to change the attitude of the other representatives of his *fifth*. In this way the parley goes on and on until an unanimous decision is reached or until the councillors begin fighting between themselves and the meeting breaks up in a battle. In the latter case the opponents form martial alliances, and the fight continues until one side has been defeated and made to pay an indemnity to the other. Even when the tribal council ends peacefully it often takes a week or more before an agreement is reached.

We thus see that the deliberative bodies in Riffian government are really composed of but two sets of members, the village council composed of adolescents who handle the small

[1] During the combats with Spain in the last three decades, certain councillors have arisen from time to time who have acted as virtual dictators. Among these were Moh Azerkan of the Beni Urriaghel, Hajj Bukkeish of the Gzennaya, and, more widely known than the others, Abd el Krim. The rise of such dictators is psychologically un-Riffian; in these cases it was brought about by too late a realization of the necessity of union against a common foe.

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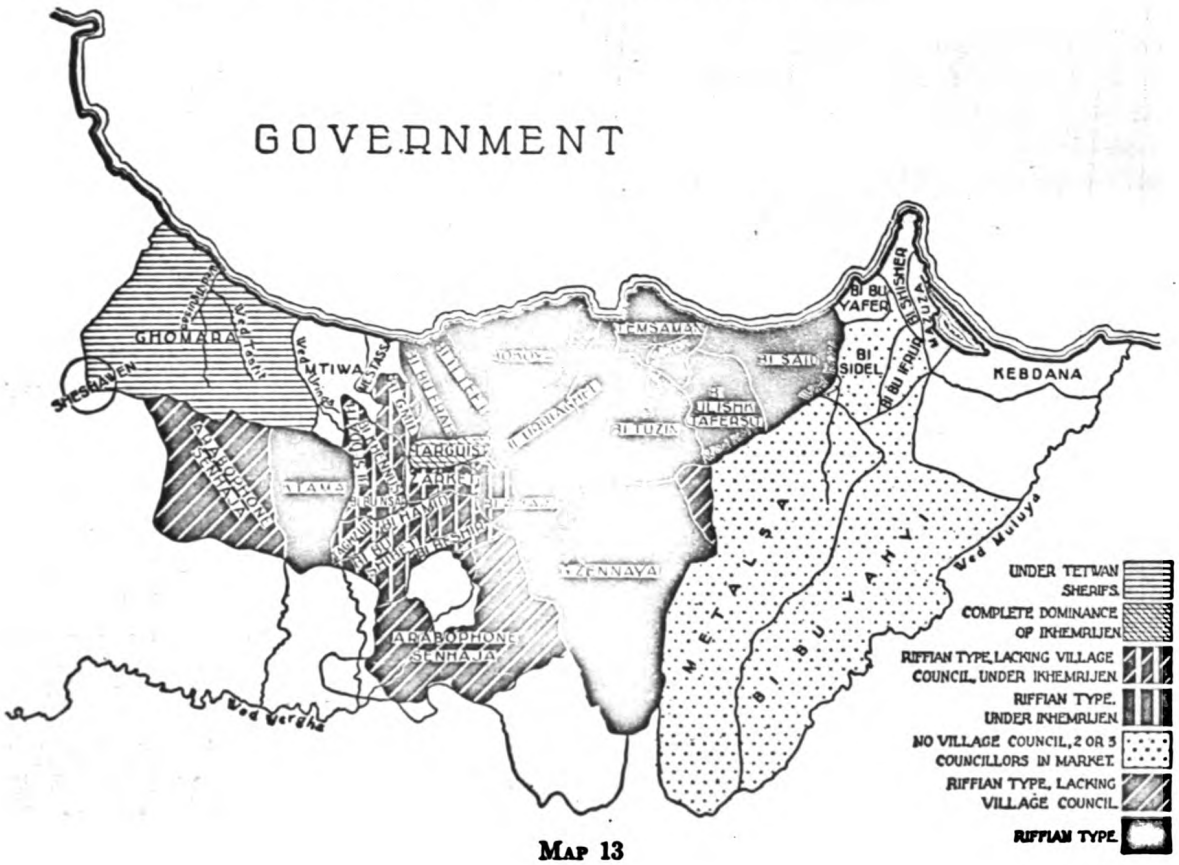
affairs of the *bone* and the council of the great, composed of councillors who concern themselves with the problems of the *canton* and go together to take part in the tribal council in which the function of the *fifth* is to divide the councillors into preliminary alliances.

The type of government just described is limited to the tribes of Beni Said, Beni Ulishk, Tafersit, Temsaman, Beni Tuzin, Gzennaya, Beni Urriaghel, Bokoya, Beni Itteft, Beni Bu Frah, most of Beni Amart (exclusive of the region immediately contiguous with Zarket and Beni Mesduy), and, curiously enough, the Senhajan tribe of Ktama.



MAP 13

The following tribes or parts of tribes have the same sort of government, except that the village council is lacking, the minor duties accomplished by it in other regions being neglected or else taken over by the council of the great: the Asht Dris of Metalsa; Marnissa, Fenassa, Ulad Azam, Beni Kora, Bu Adl, Khunduktamda, Zrarka, Beni Krama, and Beni Wenjin, from the Eastern Arabophone Senhaja; and all the Western Arabophone Senhaja.

In Targuist is the center of the temporal authority of the marabutic family of Ikhemrijen, who have absolute political control of that tribe, as well as of the northwesterly portion of Beni Mesduy; in Zarket, in the rest of Beni Mesduy, which counts with it, in Beni Hamid, Beni Bu Shibet, Beni Beshir, Beni Berber, Taghzuth, Beni Bu Nsar, Beni Khennus, Beni Seddath, and Beni Gmil, the same type of government as that described in the previous paragraph obtains except that the Ikhemrijen dictate to the councils what they shall do, and in fact keep the moderators of these bodies practically in vassalage. In these tribes

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the Ikhemrijen forbid warfare and alliances, with a result that, as a natural outlet for bellicose exuberance, brigandage is rife.

In the northwestern part of Beni Amart, in the *canton* of Ijaonen, the power of the Ikhemrijen prevents warfare and alliance; otherwise the government is purely Riffian in type.

In the Ghomara the Arab system of government is employed, with the customary alignment of ḳaids (leaders of tribes), khalifas (leaders of *fifths*), and sheikhs (leaders of *cantons*), excepting that all these officers are under the jurisdiction of a marabutic family of Tetuan.

Metalsa, except Asht Dris, Beni Bu Yahyi, and Beni Sidel and Beni Bu Ifrur of Galiya, employ a hybrid form of government in which there is no village council and the council of the great consists only of two or three men who meet in the market to administer justice for the region near it.

Mtiwa, Mestassa, Beni Bu Yafer, Ait Shisher, Mazuza, Kebdana, Muziet, Rgheiwa, Ain Mediuna, Bab Wendar, Beni Ulid, Branes, and Burda had fallen completely under the Arab system before the time when Abd el Krim attempted to remodel the government. In the eastern section and in Mtiwa and Mestassa the ḳaid was euphemistically called by the Berber term *amghar* (councillor), and in the Senhajan tribes mentioned the sheikh was called *kebir el jama*, or "great one of the congregation."

DUTIES OF THE VILLAGE COUNCIL

The cases tried by this body and the matters it is required to regulate are as follows (the fines listed are only approximate):

Theft of eggs and of poultry. The thief must pay a fine of thirty dollars. If the culprit is a child, his father appears and pays it.

Theft of maize. Boys who steal early ripening maize are collectively fined five dollars. The injured farmer has the right to pick ripened ears from the terraces of the thieves' parents to the number which he has lost.

Cutting maize in adjoining terraces. Sometimes maize growing in adjoining terraces, owned by different men, ripens at different times. The owner of the later ripening maize may wish to prevent the owner of the other field from cutting his crop until both are ready, through fear that his own maize may be trampled in the process. This situation arises when it is necessary to enter one terrace by passing through the other. In this case the village council enjoins the owner of the early maize to wait until the other is ready.

Breaking branches of fruit trees. If goats or children break branches from a fruit tree, the owner of the tree brings the branch or branches to the mosque, where the village council counts the number of buds on the branch or branches. A *girch* (about five cents) is charged for each bud, the recompense to be paid the owner of the tree, and in addition a fine of twenty dollars must be paid.

Trampling vegetable gardens. This offense is punished by a fine of one to two dollars, with no restitution.

Policing orchards. During the harvest season the members of this body police the orchards of the *bone* during the night to prevent thefts.

Starting the grape picking. The village council, which has charge of allotting poor families to rich ones for the grape picking, exacts a fine of twenty dollars from anyone guilty of picking grapes before the signal is given.

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Picking windfall olives. Similarly, the head of each family must pay a quarter of a dollar for each member of his family who starts picking up windfalls before the signal is given.

Theft of olives. The outright theft of olives is punished by a fine of ten dollars.

Trespassing in order to pick grass. If a man catches a woman picking or cutting grass for her cow on his land, he may report her, and her husband will be fined one dollar. But to make such a report is considered mean and few are willing to do so.

Stray goats and cattle in the cemetery. When goats or cattle, either with or without the intention of their guardian, enter a cemetery, their owner is fined a quarter of a dollar for each goat, and a dollar for each bull or cow which entered.

Repair of irrigation ditches. If any farmer fails to send a man or men to work on a ditch, when he is required to do so, he is fined between two and three dollars per day per man.

Taking water illegally from irrigation ditches. This is considered a serious offense, and although it incurs but a five dollar fine, it always breeds bad feelings and often incites to murder.

Regulating attendance at prayer. To explain this function it is necessary to anticipate the discussion of religion. Each *bone* in the *canton* is required to send twenty-five men once a week to the common mosque of the *canton* to pray. The village council of each *bone* lists the names of all married men in the *bone*; a day is set for each *bone* to attend the mosque, and the *bone* keeps that day permanently. The first week the first twenty-five men on the list must go, the second week the second twenty-five, and so on until the list has been exhausted, when the procedure starts all over again. If the number of married men in the *bone* is not evenly divisible by twenty-five, those forming the remainder at the foot of the list are supplemented by enough at the head of it to fill the number, and the rotation starts anew. It is the task of the village council in whose territory the cantonal mosque is situated to see that twenty-five men appear from each *bone* on the allotted day. If a *bone* is so small that it does not contain twenty-five, it is combined with another *bone* for this purpose.

If the members of the village council of the mosque territory find that a quota is not full on a certain day, they fine the man who has defaulted five dollars. If this is not paid promptly the council of the great steps in and fines the guilty *bone* between two and three hundred dollars. If a man is away on a journey his name is temporarily stricken from the list and the following names are moved up one place; if he is ill or for some other reason unable to go, he is allowed to send a substitute. If a man falls ill on the way, becomes wounded, or is otherwise prevented from reaching the mosque when it is too late to obtain a substitute, his absence is excused.

The fines thus extracted, the proceeds of which go for the upkeep of the mosque, formerly consisted of walnuts, almonds, figs, or raisins. Later, when sugar was first imported, two sugar cones were assessed. Later still the money fine was introduced.

Providing for exiles from other fifths. When a man has been exiled by the tribal council for a year, two years, or more, he must pass to a different *fifth*, preferably to a *bone* in which he has friends. The village council of the *bone* collects an assessed portion of the crops of every farmer and gives it to him. This it does for the first year only. If he remains more than a year he must work as a share-laborer for a farmer and earn his living. If a farmer refuses to give his assessed portion it is taken by force, and twofold. Such refusals are, however, almost unknown.

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Entertaining councillors of another tribe. If the councillors of a strange tribe stop at a village for the night, the local village council has charge of their entertainment. They first provide a house for the guests by expelling some childless man and his wife from their dwelling for the night. They then collect foodstuffs. Bread and all fruits, both fresh and dried, nuts, and vegetables, are assessed from rich men without payment. Meat, sugar, tea, candles, oil, pepper, butter, and poultry are purchased from members of the *bone* willing to sell them. The boys of the council buy the poultry from widows, and eggs as well, if no one brings them voluntarily. Anyone refusing to supply the bread assessed him may be fined ten *soldi* a loaf; but since no one has ever been known to refuse, the fine is purely theoretical. If in buying those articles not given, the members of the council spend more money than they have in the fine treasury, they pay the excess amount themselves, later collecting it in equal portions from all the men of the *bone* who have been married one year or over. They themselves act as cooks for the visiting councillors.

Entering council chamber unbidden. If any member of the *bone* enters the council chamber while the council is deliberating, the intruder is told to remain and is given tea. When at length he departs, a member of the council is immediately sent out to call him back. This time he is reprimanded for having entered unbidden, and is fined between two and three dollars.

Conversing with women. If a man or boy speaks to a married woman belonging to a *bone* other than his own, on the path or in any other public place, except the market, the village council of the village to which the woman belongs summons the offender and fines him five dollars. If the offender repeatedly seeks out the woman, or loiters about places she is known to frequent in order to converse with her, the village council of the offender's own *bone* fines him between fifty and sixty dollars. If the offense takes place in market it is considered more serious, and comes before the council of the great.[1] These rules do not apply to unmarried women, who may be spoken to, in a respectful manner, by anyone.

Quarrels between women. When one woman injures another with a stone, stick, or other implement, the village council collects a fine of from five to six dollars from the husband of the aggressor. The council generally hears of such cases through gossip, since the husband of the injured woman is usually too ashamed to report it.

Entering a cemetery occupied by women. If a man or boy enters a cemetery when the women of the *bone* are convening there on a Friday or holiday, he is fined five dollars.

Entering a saint's tomb occupied by women. If a man or boy enters a saint's tomb in which women are convening, the village council fines him from fifty to a hundred dollars.

Fighting with the hands. If two men fight with their hands, without using any weapon, the village council determines which man started the fight and fines him an amount commensurate with the injury done.

Speaking to an enemy. If a man is caught conversing with a member of a hostile *bone*, at a time when war is either in progress or imminent, the village council of his own *bone* fines him fifty dollars.

In the tribes and territories where there is no village council, the rendering of justice in small affairs which is the work of this body is not performed. For example, one man may cut down another's tree or take his grass without any fine or other official reckoning; he can likewise speak to a woman of another *bone*; but if he does these things he incurs the wrath

[1] See below, p. 102.

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of the men affected, and may thus start a feud which will end in killings, after which it becomes the concern of the councillors to render justice.

In regions where the Arab form of government has supplanted the indigenous type, such affairs are decided by the sheikh.

DUTIES OF THE COUNCIL OF THE GREAT

This council, which is the governing body of the *canton*, does not convene as often as the village council, but comes together only in market and when some occasion demands it, its moderator then sending for the members. In *cantons* which have no markets, the council of the great has no regular meetings.

Supporting the village council. If anyone who has been fined by the village council refuses to pay it, that body sends a messenger to the moderator of the council of the great. The moderator sends for the members, who come armed to a place previously agreed upon and proceed in a body to the house of the offender. There they assess upon a him fine several times that originally imposed, amounting usually to between fifty and two hundred dollars, depending on the offense.

Theft of livestock. A man who has stolen sheep, goats, cattle, donkeys, mules, or horses is summoned before the councillors and fined between a hundred and two hundred dollars, besides being forced to restore to his victim the animals stolen, in cash or in kind. The theft of camels does not incur jurisdiction because of the lawless condition of the nomads who own them. Such a theft simply results in a fight.

Fighting with sticks. The councillors decide which of the parties is at fault and fine him fifty dollars. If the *bone* of the injured man is a strong one, the councillors force the culprit to bring a goat, bread, tea, and sugar and go with them to the house of the injured man to present him with a feast. Such a feast, provided by visitors to the house, is a strong act of compulsive magic and cannot be disregarded. The recipient of such a favor must grant any request made and cease enmity against the giver. If the *bone* of the injured man is weak, no precaution of this nature is necessary.

Shooting at a man but missing him. He who shoots at another without hitting him must pay a fine of one hundred dollars to the councillors.

Speaking to women in market. This offense is considered greater than that of speaking to women in any other place. It is settled by the councillors of the *canton* in whose territory the market is held, and is punished by a hundred dollar fine.

Entering a women's market. For a man to enter a market which is restricted to women is an offense as serious as that of speaking to a woman in a common market, if not more so. It is punished by a fine of a hundred dollars, paid to the councillors.

Adultery which the injured husband does not discover in the act. If a husband hears that his wife has been unfaithful, but did not actually witness such an event, he is not allowed to kill the suspected man without incurring the penalty for ordinary murder. He has the privilege of bringing the matter before the councillors, who fine the suspect, if they are reasonably sure of his guilt, between a hundred and two hundred dollars. They forcibly divorce the woman from her husband, and forbid her to remarry him or any other man. Women so divorced return to their parents to live. Such a woman often becomes a prostitute, plying her trade with the greatest secrecy possible. If she is caught doing this, the

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man with whom she is involved is punished just as was the first convicted offender. If she has been publicly exposed several times as a prostitute, the men of her *bone* kidnap her, carry her into the mountains, and there kill her and hide her body. No notice is taken of her absence, and if the councillors hear about the affair they pretend not to have done so.

If a woman catches her husband in the act of adultery with another woman, she ordinarily goes back to her own people and tells them of it. The men of her family, her father, brothers, or paternal uncle, may bring the matter up before the councillors and have the husband fined and divorced. In many cases, however, the men of her *vein* persuade the woman to do nothing about it, thinking that to make a commotion would only cause the disruption of the *bone*. In case the woman has married outside her *bone*, whether or not action takes place depends largely upon the respect which her own *bone* has for that of her husband. In any case, the sacramental defilement of the man is not considered as great as that of the woman in the opposite situation.

Blood money. Although murders, woundings, and adultery caught in the act are offenses beyond the jurisdiction of the council of the great and are relegated to the tribal council, one consequence of them falls directly upon the councillors. This is the assessment and collection of the *diith*, or blood money. Whereas the tribal council has the right to impose the fine, the council of the great has charge of compensation to the injured family. This takes place after the tribal council has finished its judgment and punishment. Murder is atoned for by the payment of a sum between one and five hundred dollars. The amount varies from *canton* to *canton*, but within a *canton* is constant and inflexible. Wounds are paid for at the rate of twenty-five dollars a month for each month of convalescence, until the injured man is able to work again.

The man who committed the crime pays, if he is able. If he is unable to raise the money by selling his property, the *bone* pays. In some *bones* the group as a whole always pays, whether the guilty one is able to raise the money or not; in others a man other than the guilty one pays, with the understanding that he is to receive the total of the next blood-money payment to his *bone*.

In the *bones* which pay individually, receipts are given to the children of the deceased, and if he left no children, to his father. Children receive the money on the basis that one boy is equal to two girls. If the deceased leaves neither children nor father, it is divided among the members of the *bone*. Many *bones* refuse altogether to receive blood money, preferring to take it out in blood by killing a member of the hostile *bone*, in which case, after the punishment of the tribal council is finished, the account is considered by the councillors as settled. Frequently the injured *bone* accepts the blood money, then suffers a revulsion of feeling and takes blood vengeance in addition, in which case it is required to return the payment.

Murders within the *bone* rarely occur, and are considered unnatural crimes. No blood money is assessed, because such an offender is instantly killed by his own people if he is unable to escape. A man fleeing such a crime will not be harbored by any Riffian, and must continue until he has left the Rif altogether. Even in this case he must take care to go to some place to which Riffians do not ordinarily travel, lest revenge overtake him later.

Attending weddings outside the canton. Another duty of the council of the great, this time of a bloodless nature, is to attend weddings of other councillors or their sons in other *cantons* or *fifths*. This is done in order to foster friendly relations between the two groups.

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The councillors go in a body, taking with them twenty or more girls adept at singing and dancing, hired musicians, a bull or cow, two or three mules laden with bread, and quantities of tea, sugar, and candles. The cost of the presents and the fees of the musicians are paid out of money collected in fines.

DUTIES OF THE TRIBAL COUNCIL

The task of the tribal council is to render judgment, exact fines, and destroy property in cases of adultery caught in the act, murder, and woundings; to make decisions as to tribal alliances in warfare; and to interfere with internal fights in other tribes.

Adultery caught in the act. A husband who surprises his wife in the act of adultery has the traditional privilege of killing the man, removing his genitals and placing them in the mouth of his corpse, killing his wife, and ripping her from pubis to diaphragm with a knife. This action is a privilege and not a duty. Many husbands are physically unable to do so; others are disinclined; still others mutilate their wives by cutting off the fleshy parts of their noses and let them go. One instance is known in Gzennaya of a man who thrust live coals into his wife's vagina and then released her. In at least half the cases, recently at any rate, no revenge is taken on the woman, her divorce and disgrace being considered ample punishment.

When the members of the tribal council hear of this event, they leave whatever they are doing and go as rapidly as possible to the adulterer's house. This they burn; they impose a fine of one thousand dollars or thereabouts, depending on the usage of the tribe, and on the importance of the *bone*. The fine is accepted either in cash, livestock, land, or in all three. When land and livestock are taken they are sold on the spot, not by bidding but by arbitrary prices, fair to the victim, placed on each animal or portion of land. If the proceeds of the sale exceed the amount of the fine, the balance is returned to the *bone* of the adulterer. If the adulterer and the adulteress belong to different *bones* the burden of the fine is shared between the *bones*. If the adulterer has survived the vengeance of the injured man he must leave the tribe forever. Women who survive go back to their families, forcibly divorced and forbidden to marry again.

After the cash of the fine is in hand, it is divided among the *fifths*, each receiving an equal share, to be divided evenly among each *canton* composing the *fifth*. Thus the *canton* of the offenders receives back a portion of the money which some of its members have paid. It often refuses to accept this, in which case the money goes to the actual payers. *Cantons* friendly with that of the adulterer may likewise refuse to accept, and their money too is returned.

Wounding. When one man wounds another, the tribal council comes to the offender's house and exacts a fine of five hundred dollars after questioning the councillor or councillors belonging to the offending *bone*. The fine is always paid by the *bone* as a whole, whether the blood money is or not.

Murder. When one man murders another, whether or not in retaliation for a previous murder, the tribal council comes to his house, which it burns, providing it dares to. It cuts down the fruit trees and inflicts a fine of a thousand dollars. If the man and his *bone* refuse to pay the fine and resist the burning of the house or the cutting of the trees, the members of the tribal council attack them. This fight may last anywhere from a half hour to several months, and may turn into a war. If the *bone* which has refused has no allies, it seldom wins,

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but there are few *bones* without allies. The allies in the tribal council draw apart as inconspicuously and as quickly as possible and start shooting at the rest of the tribal council. The *bone* which has refused sends messengers to talk with various councillors and to persuade them to join their side, promising money and women. In this way there are generally two sides fighting each other before the day is over, and they stay there and fight until one side has won. If the tribal council wins and succeeds in burning the house of the murderer, it burns the rest of the houses of the *bone* as well, and cuts down as many of its trees as it desires.

The *bone* then flees in a body to another *fifth*, to another tribe, or out of the Rif entirely. If the members, thinking already of vengeance, cannot stand the sight of their trees being cut down and their houses being caved in, they select a bull from the herd which they are driving into exile with them and entrust it to the leader of the mosque or to a student, who leads it back into the presence of the tribal council and slaughters it there. If this is done the tribal council is compelled to let them go back again and to permit them to pay the fine. Once the bull is slaughtered the tree-cutting and other destruction must cease. Many *bones* are too proud either to pay or to send a bull, so that they become destitute and homeless through their pride, providing they are not strong enough to defend themselves against the tribal council.

A *bone* may thus be expelled from a tribe, permanently or temporarily. A *bone* which is continually making trouble and causing feuds may be the subject of a special meeting of the tribal council, which decides to exile it from the tribe either permanently or for a given number of years. Killing people on Mohammedan feast days or during the month of Ramadan is one of the strongest reasons for the expulsion of a *bone*.

This habit of exiling *bones* has been going on for so long that there are today numerous colonies of exiled Riffians living outside the Rif. Such are colonies of Beni Urriaghel in Oran and in Tangier; of Beni Amart in Ain Leuh, on the Wergha; of Beni Amart and Beni Hadifa at Armeila, on Wed Teheris; of Beni Tuzin at Zerhoun; of Temjunt of Gzennaya in Ain Mediuna (Beni Gzin); of Beni Yunes of Gzennaya at el Kob, in the Senhajan tribe of Beni Ulid; and the Ulad Abd el Mumen of Iherrushen of Gzennaya at el Mta outside of Fez. Most of these exiles could now go back if they so wished, but they have been away for so long, in many cases for generations, that they no longer have any desire to return.

Sometimes a murder spreads into a feud and from a feud into a war so rapidly that before a tribal council can come together to deliberate the councillors find themselves fighting on one side or another, in a tribal war.

Murder often leads to immediate revenge, and immediate revenge to a feud between *bones*. The feud may be a bitter one, in fact a pitched battle, in which may join other *bones* allied of old to one or other of the principal combatants. Most allies, however, are made anew on the occasion of each war. An alliance is called *liff*; it belongs more properly under the heading of magic than under that of political organization, but must be discussed at this point if the complexities of Riffian warfare are to be understood.

A *liff* is a shame-compulsion laid by one *bone* on another, a magical act which forces the second *bone* into alliance with, or at least toleration of, the other. By making *liff* with a number of other *bones*, a *bone* may increase its fighting force many times, and by both sides industriously making *liff* with others, a general war starts, in which there may not remain enough of the tribal council to make its convening worth while.

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A tribal war seldom has time, however, to work itself out to its own conclusion, since other tribes in the neighborhood soon see that to take an active interest in the affair will be to their advantage.

INTER-TRIBAL WARFARE

If a lively internal war has broken out in the tribe as a result of the refusal to pay a fine imposed by the tribal council, or through a series of reciprocal murders and resultant alliances, made before the tribal council could intervene, the surrounding tribes call together their tribal councils which go to the territory of the warring tribe and meet as a great council of tribes in the middle of it, in a village, or in the open country. They summon the tribal council of the warring tribe to answer for its action. If the tribal council comes, the assembled tribal councils (the great council of tribes) assess a fine of from two to three thousand dollars, which they divide, giving each tribe with five *fifths* five parts, and each tribe with only one *fifth* one part. Then the subdivisions within the *fifths* and single tribes take place and the councillors go home.

If, however, the tribal council of the fighting tribe refuses to come and pay a fine, the tribe patches up its difference quickly and presents an united front against the invaders. In this case the councillors of the other tribes send home for retainers, each *fifth* separately, specifying the number of men to come from each *fifth*, from each *canton*, and from each *bone*. The old men, retired councillors, select the warriors and their judgment is final. The reënforcements come as soon as possible and there ensues a war between the erstwhile internally warring tribe and those which have come to punish it. If the alliance wins, it does so by defeating *canton* after *canton*, imposing a fine upon each when it submits; the fine levied on the first *canton* is about five thousand dollars, and the amount increases until the last *canton* to submit has to pay about fifteen thousand dollars. As each *canton* submits it must join the victors in fighting the rest of its own tribe, in return for which it receives its share of the fines paid as each of the other *cantons* submits. In this way all defeated *cantons* pay, and all but the last, which pays the most, receive shares of the spoils.

When the internal war is in Beni Urriaghel, Gzennaya is the first tribe to send its councillors, then Beni Amart, usually on the same day; the next day Zarket and Bokoya send their contingents, and later the *canton* Tizera n Jakhatha of Beni Tuzin and that of Sidi Bu Daud of Temsaman. Sometimes Beni Said sends two or three councillors to join the others. Gzennaya, Beni Amart, and Bokoya usually sent all their councillors, whereas Beni Tuzin, Temsaman, and Zarket, as well as Beni Said, seldom send more than a few each. If the great council of tribes succeeds without further fighting, the councillors of Zarket, Temsaman, Beni Tuzin, and Beni Said receive one or two hundred dollars per tribe. This money the individual councillors keep. The tribes which have come in full strength get their usual shares. If, however, it is necessary to send for reënforcements, the tribes poorly represented send for men with the rest, and after the affair has been settled their tribes receive their full shares, which are communally divided.

The tribes mentioned do not all necessarily interfere when Beni Urriaghel is fighting internally, but only if the combat promises to be extensive. The Gzennaya councillors, however, always go, and sometimes succeed in handling the situation alone. The Beni Urriaghel always band together immediately when other tribes step in, postponing settlement of their local differences until later. Beni Hadifa, nominally a *fifth* of Beni Urriaghel,

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is not required to pay its portion of the fines imposed upon Beni Urriaghel unless it has actually been involved.

When Temsaman fights internally, Beni Tuzin, Beni Said, Gzennaya, Beni Ulishk, and Tafersit send their councillors to the great council of tribes; Beni Ulishk and Tafersit count as one in the division of the spoils. Beni Urriaghel does not send councillors to Temsaman, partly because the others will not allow it, and partly because the tribe is afraid of retaliation.

When the war is in Gzennaya, the Beni Urriaghel, Beni Tuzin, Beni Amart, Marnissa, Metalsa, and Jebarna (the latter, although part of the Gzennaya, do not count as such in time of war, since they are recent immigrants from the Branes) send councillors. When the fight is centered in the *fifth* of Imsdurar, Branes also sends her representatives. Temsaman sends a single councillor if the fight promises to assume large proportions.

When Beni Tuzin occupies the center of the stage, the councillors of Gzennaya, Metalsa, Beni Urriaghel, Temsaman, Beni Ulishk, Tafersit, and Beni Said go, and Beni Amart sends a few representatives.

When the war is in Beni Amart, Gzennaya, Marnissa, Beni Urriaghel, Beni Hadifa (acting as a separate body), and chosen members of Zarket, Bokoya, and Beni Tuzin participate.

When Bokoya is involved, the councillors of Beni Amart, Beni Urriaghel, Beni Itteft, Beni Bu Frah, and selected members from Gzennaya, Mestassa, and Mtiwa of the Rif attend the great council of tribes. The Sherif of Targuist also is sometimes present at the final settlement, taking ten men with him as bodyguard. He does not take part in any of the fighting, but tries to use his religious influence as a means of putting an end to the bloodshed. When the fine is collected, he is usually given twenty or thirty dollars. Sometimes, however, he is ignored. Shorfa of Targuist have in the past attempted to interfere in Beni Urriaghel and Gzennaya, but without success or remuneration, for which reason they have for some time ceased paying attention to wars within these tribes.

When the fight is in Beni Itteft, Beni Bu Frah, Mestassa, or Mtiwa, the others of this group send their envoys, and those from Bokoya and Beni Gmil attend as well; when the fight is in Mtiwa, Beni Khennus and Beni Seddath also participate.

When the fight is in Beni Ulishk or Tafersit, Beni Tuzin, Metalsa, Temsaman, Beni Said, and Beni Mohammed and Khebaba of the Gzennaya take part.

When it is in Beni Said, Beni Tuzin, Temsaman, Beni Ulishk, Tafersit, Beni Bu Ifrur, Beni Sidel, and Gzennaya send representatives. Beni Said is the only tribe which has recognized the value of such mediation when actually in trouble, since it sends for the Gzennaya councillors to come and settle it for them. They have seldom resisted the intervention of the great council of tribes, preferring to pay the fine rather than continue a destructive internal quarrel.

Beni Bu Ifrur has not fought internally for a long time, since it is all one related group. Beni Sidel has been known to fall into such a difficulty, and Beni Said, Beni Bu Yahyi, Metalsa, and Beni Bu Ifrur, send councillors, while the sheikhs of Ait Shisher and Mazuza also come. These sheikhs are given none of the proceeds. Beni Said wields the greatest influence in such gatherings.

When Beni Sidel and Beni Bu Ifrur fight together, the same alignment appears, and with the others go the sheikhs of Ulad Stut.

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Beni Bu Yafer has fought internally upon a number of occasions, but the other groups do not interfere, since they have learned from experience that the Beni Bu Yafer do not submit until after an arduous struggle, at the end of which they do not possess enough property to pay a fine worth the trouble of interfering. In consequence of this, they are not allowed to send their councillors to other tribes.

For a considerable period of time there has been no fighting worthy of intervention in Mazuza, Ait Shisher, or Kebdana; this is perhaps due to the early influence of the Spaniards upon these regions.

When the fighting is in Beni Bu Yahyi or Metalsa no councillors bother to go, since the land is too difficult to travel in, and since there are no houses to burn, and no property to confiscate which cannot readily be moved away before their arrival. Banditry has always been rife among these tribes, and active feuds between *bones* perpetual. Theft, in the Rif considered a crime unless practiced outside the tribe and its allies, is among the nomads an honorable profession when practiced between *bones*.

When the fight is between any of the tribal groups in the Eastern Arabophone Senhaja, the others of this group send their councillors and sheikhs, and Gzennaya as well sends councillors. In the meeting which follows Gzennaya plays the dominant rôle.

When the fight is within the Senhaja Sghir, the Sherif of Targuist betakes himself to the scene, accompanied by the councillors of the non-combatant tribes under his control. The Sherif collects the fine, keeping most of it, and distributes a small fraction of it among the councillors, who have nothing to say about the matter.

This rule does not apply to Ktama, which has never submitted to the authority of the Sherif. On account of its poverty and inaccessibility, Ktama is free from the intervention of councillors from other tribes; consequently it is in a constant state of turmoil, and banditry is common. This tribe has always been noted for its lawlessness, and has been generally avoided by travellers.

The tribes of the west, including the Western Arabophone Senhaja and the Ghomara, do not send representatives out to stop war and collect fines. This territory likewise enjoys a perennially bad reputation.

Some mention should be made of the ultimate disposal of money and other property taken by the various administrative bodies. Fines collected by the village council are kept by the moderator of that body for the entertainment of guests in the local mosque, for the purchase of tea, sugar, other foodstuffs, and candles for the council to use during its deliberations, and for cartridges and firearms to be used by members of the *bone* in time of war.

Fines collected by the council of the great are partly divided between the *bones*, partly given to the *fkih* or preceptor of the cantonal mosque, and partly expended upon the upkeep of, and hospitality in, this building.

Fines collected by the tribal council are divided equally among the *fifths* and then equally among *cantons* within the *fifths*. The moderator of each council of the great divides the money allotted his *canton* among the councillors who participated in the events which led to its collection, and among ordinary fighting men, if these were called upon to reënforce the councillors. The moderator distributes the money publicly at one time, giving more to the men who deported themselves bravely than to those who showed but mediocre interest in the fighting. Men who manifested cowardice and men who are absent from or come late to the division get nothing.

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CHAPTER VIII

MARKETS

DIFFERENT aspects of this subject have already been discussed in the chapters dealing with material culture, social organization, and government.[1] Since indeed the primary purpose of the market is economic, it is the seat of operation of an interesting social class, and likewise often the local administrative center. Hence, little remains for description save the general scheme and coördination of the whole.

A market meets weekly on a fixed day and in a fixed place. There is usually but one to a *canton*, although this rule, like all others, has its exceptions. The days and locations of markets are so correlated that it is possible for a person living in almost any place to reach a market on foot and return home again on any day of the week except Friday, when markets are never held. The word for market in both *thamazighth* and Arabic is *suḳ*, and markets are given the names of the days on which they are held. Thus all markets meeting on Thursday are called *suḳ el khemis*, or simply *el khemis*. Markets meeting on the same day are distinguished by the addition of the names of the places in which they are held.

Thursday markets are more important than the others, as a general rule, because Friday is the Mohammedan sabbath and provisions for it must be obtained in advance.

Each market is administered by the council of the great of the *canton*. This body has a house, or among the nomads, a tent, in or on the outskirts of the market. (See plate 30.) On market days it generally meets in a room of this edifice. Most such houses have a second room which is used as a rest-room for people attending the market, or as a guard-house for retainers of the councillors. Cases which have accumulated during the week are brought before the council of the great at this time, since defendants in situations which concern the councillors often prefer to postpone their appeals or complaints until market day rather than request the moderator of the council of the great to have a special meeting called for a single case.

Any offenses committed in market are considered more serious than if committed elsewhere, and are more heavily fined; offenses which would otherwise concern the village council are brought to the attention of the council of the great if committed in market.

The division of spoils among the members of a *canton* who have participated in a tribal war is often made in market.

In the markets under the authority of the Ikhemrijen, firearms must be left outside before their owners may enter. In other markets rifles were usually carried before the European occupation. Serious fights sometimes arose in markets, in some cases so severe that the tribal council convened and decreed the market closed forever, lest the sight of the place where kinsmen had died might in future remind members of the different *bones* of their mutual grievances and incite them to further violence.

The chief purpose of every market is of course the buying and selling of goods. (See plates 30, 31, and 32.) The vendors of different articles are segregated according to their wares, the cloth merchants, the women selling pottery, and so forth. The butchers are rele-

[1] Chapters IV–VII.

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gated to a position as far removed from the rest of the market as possible, on account of the malodorous nature of their wares. If there is a stream in or near the market, the butchers are put on the other side of the stream from the rest. Farmers bring in cattle, sheep, and goats, and turn over the animals to the butchers, who are blacksmiths on other days of the week, or are members of the families of blacksmiths. After the butchers have slaughtered the animals, washed the blood from their throats, inflated their skins, flayed, and quartered them, the owners of the animals hang the meat on wooden racks permanently fixed to trees or posts nearby, where they are thus exposed for sale. Quarters of goat and sheep must have the hoofs and a portion of the adjoining skin left on so that customers can tell the difference between them. The butcher is paid for his work with a portion of the meat, with money, or with the hide, head, and entrails, which are the most common reward.

The meat market is the assembling place of all of the dogs in the *canton* which are able to get there, dozens of them waiting expectantly nearby each time an animal is slaughtered. They often snatch ends of intestine as the animal is being cleaned, and lap up eagerly the rills of blood flowing down towards the stream.

The butchering duties of the blacksmiths are not confined to the market. Whenever members of a *bone* together buy a cow or bull for the meat, the butcher is called in to slaughter it. The portions are divided equally among the married men, who must pay for their pieces before they can have them. A portion is sent up to the mosque of the *canton* for the students in it, and the blacksmith receives his portion as reward for his work.

Returning to the market, we find two other social outcasts at work, the market crier and the official weigher or measurer.[1] These are hired by the councillors, and carry on their functions as official appointees, but disputes arising from the work of the weigher or measurer are carried before the councillors. They work in as many markets as there are days in the week, except of course Friday, and providing that each market is within walking distance of their homes and that the councillors of each are willing to hire them.

Women's markets. In a number of *cantons* there is in addition to the regular market another devoted to women. All men are excluded from it, and are severely punished if they enter. It is commanded by a woman appointed by the councillors of the *canton*. In it the women sell, besides the fruits, vegetables, hens, eggs, and pottery which they dispense at the regular market, magico-medical materials which are supposed to act as contraceptives and to produce abortions. The sale and possession of these is kept secret from the men because the use of them is considered ample reason for divorce. Sometimes a woman who fails to bear children within a reasonable time after marriage is accused, on general suspicion, of using them and is divorced.

Boy Markets. In the Jebala, markets were formerly held in which boys stolen from their families were sold, to be used as apprentices by wandering musicians and as companions by ordinary individuals. They were and still are kept by their purchasers for the purpose of sodomy, and other uses to which these children are put are made secondary to it. When they have grown to an age at which they cease to interest their purchasers sexually they are released and allowed to earn their own living.

The market el Had Ikauen of Ktama was a famous boy market, and was not closed until the advent of the Spanish forces of occupation, who have been trying to prevent such

[1] See p. 92.

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MARKETS 1

A gathering at Suk et Tnine, Beni Amart

Suk es Sebt of Targuist

Talking things over. Suk el Khemis, Ikaroen, Gzennaya

The house of the Council of the Great, Suk el Khemis, Ikaroen

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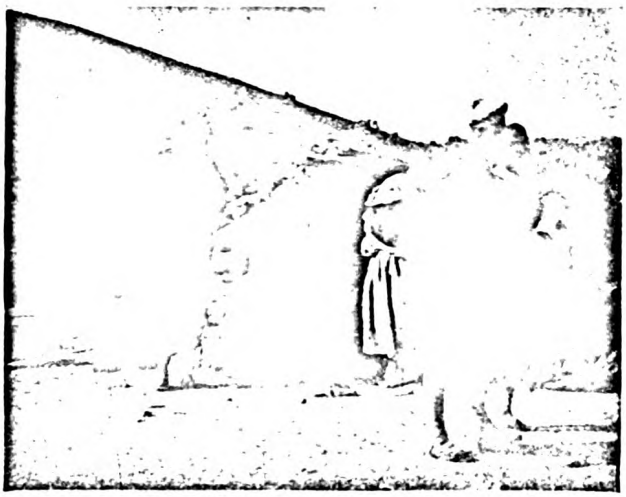
MARKETS 2

In the market at Tiguisas, Ghomara

The jeweller's shop. Suk el Khemis, Targuist



A shop on the outskirts of the market, Suk et Tnine, Beni Amart

Brush shelter employed in Ghomaran markets. Tiguisas, Ghomara

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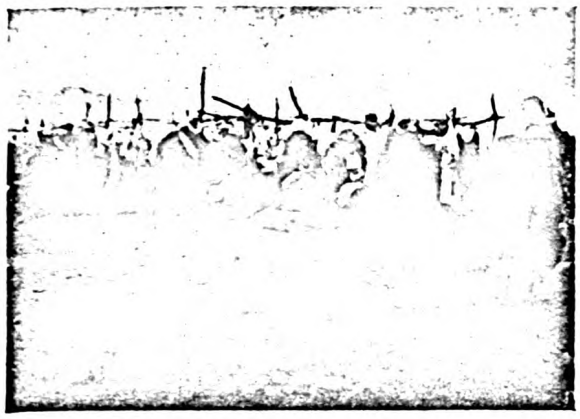
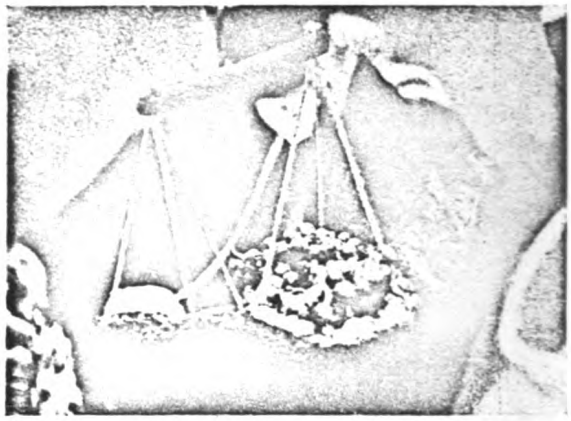
MARKETS 3



Butcher's section, Suk el Arbaa, Kasba Selwan, on the Mazuza-Kebdana border

Shluh butcher with goat's skin inflated before flaying. This method is also employed in the Rif



One of the *ishegairen* (weighers) weighing grapes against a stone. Gzennaya

Women selling bread. Ajdir

Selling salted sardines. Tiguisas, Ghomara

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sales, although it is difficult to stamp out private transactions.[1] Boy markets are found in the Western Arabophone Senhaja, Ghomara, and Ktama (also, of course, in the rest of the so-called Jebala, and centered at Sheshawen and in the tribe of Beni Zerwal).

[1] The whole Jebalan area is permeated with this type of sexual depravity, which is practiced without mutual shame or any attempt at concealment. In the Rif persons sometimes live and die without knowledge of its existence, and those who have travelled and seen it cannot mention it at home without falling into disfavor. It was punished during the recent war, in at least two known instances, by soaking the culprits in gasoline and burning them alive.

This perversion, the only form known in this region, is accompanied in the Jebala by a low esteem for women, who perform the more arduous tasks of agriculture which in the Rif are done by men. A frequent sight in the Jebala is a troop of women marching long distances loaded down under heavy bundles of charcoal and other burdens, which in the Rif would be carried by mules or donkeys.

Bride purchase, a trait common to all Moroccans but the Jews, is in the Jebala literally applied, since here the wife becomes a definite chattel of her husband, not usually the case elsewhere.

The atmosphere created by this combination of cultural factors is in striking contrast to that of the Rif, which, although primitive, is wholesome and vigorous.

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CHAPTER IX

PUBLIC BUILDINGS AND PUBLIC INSTRUCTION

MOSQUES AND SAINTS' TOMBS

THERE are three types of building which serve both social and religious purposes: the *thamsyitha n jkhothbath*, or cantonal mosque,[1] the *thamsajoth*, or village mosque,[2] and the *amrabt* (plural *imrabten*) or saint's tomb.[3]

The first, the cantonal mosque, is a large edifice, common to the whole *canton*, and to it come all the people of the *canton* for worship. It can be readily distinguished from lesser mosques by the fact that it bears a flag, green in the morning and white in the afternoon.

The second is the mosque of the *bone*, and there is one for each *bone* in the *canton*.

The third, the saint's tomb, may be a structure of some magnitude, a mere pile of stones, or simply an unmarked but nevertheless well-known place. It is supposed to be the grave of a saint, although often it is merely some place noted for the possession of some unusual natural feature, such as a large boulder, a spring, or a clump of trees, revered long before the advent of Islam. Whether it be a definite building, a marker, or merely a place, in any case it fulfills a definite function.

In each of these three types of religious edifice there is one man who has been appointed to take care of it, the *mokaddem* (plural *mokaddemin*) or "warden," [4] who may be a man of learning or, in some cases, illiterate. He is the janitor and general caretaker. He brushes the floor, sees that the mats on them are in good repair, hoists the flag on the cantonal mosque, and occasionally substitutes as muezzin for the incumbent of this mosque.

The mosques and saints' tombs acquire land in a number of ways. When a man dies childless, and is displeased with his wife for having borne him no sons, or for some other reason, he may will a share of his land to the cantonal or village mosque or to a local saint's tomb. If he has sons but is not pleased with them, he may leave a share of his property to a mosque or tomb and the rest to his children.

If, when about to die, he wishes to be buried within the mosque, he may buy his burial place with land to be given the mosque after his death. In this way he is interred under the floor of one of the rooms, and the warden has charge of the property so willed.

The warden of each public edifice has charge of the land belonging to it, and receives a portion of the produce. He does the farming on the land and cares for the trees, but if there is too much for him to do the village council enlists poor people to work with him, as previously related.

Any mosque, be it of the *canton* or merely of the *bone*, and any saint's tomb capable of providing shelter, serves as a free hotel for Riffians travelling from tribe to tribe. Lay

[1] From the Arabic *mesjida el khutba*, meaning the "mosque of the Friday sermon."

[2] Likewise from *mesjida*, and meaning literally "mosque."

[3] From the Arabic *mura'bat*. This word means either "living saint" or "dead saint"; the meaning given applies to the deceased variety and to the superstructure erected over his remains.

[4] This Arabic word is also employed to designate the "moderator" of the village council, as well as the "moderator" of the council of the great. See p. 96.

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travellers go to both types of mosque, but students prefer the larger structure, since in it they can spend the time of their visit in receiving instruction.

The prospective guests are conducted to the mosque by the first native of the *bone* or *canton* who sees them, unless they come from a place at war with the local group. In the old days, Arabs were not always as hospitably received as were Berbers, although Arabs seldom came. Jews and Christians, of course, almost never appeared, so that the problem of their entertainment seldom arose. The former would have been received by a volley of stones, and the latter by bullets.

The building in which the guest is received has a special room set aside for entertainment, beside the room in which the Friday sermon takes place or prayers are made, and the room in which school is held. In the saint's tomb there are usually two rooms, that intended for entertainment and that in which the saint's remains are buried. A saint's tomb is considered sanctuary, and anyone fleeing from murder may enter and be immune from violence until such time as he shall depart. Many mosques, of both types, are saint's tombs as well; most of them are associated with deceased celebrities.

The village mosque is used for the following purposes: for private prayer by individuals; for meetings of the village council; as a general lounging place and social center, especially for the old men; as a school, in which the pupils sleep during vacations; and as a guest house.

The cantonal mosque is used as a place of prayer by *bones* in daily rotation, as related in the discussion of the duties of the village council;[1] as a school of higher learning and a dormitory for students; as a guest house; and as the common place of worship on Fridays, when the head of this mosque delivers a sermon in the morning.

The saint's tomb is used as sanctuary by fugitives; as a social center for women; and as a place to which pilgrimages are made for imbibing some of the emanation of the saint, supposedly beneficial for specific ailments or requirements. So many of the mosques contain saintly remains that the uses just described apply to most of them as well.

EDUCATION

The older men of each *bone* informally decide on a *fḳih*, (plural *fuḳaha'*) or "schoolmaster,"[2] to teach the boys in the village mosque. They select some man of their village or a stranger, more frequently the latter. He must be a man of considerable ability in writing and with a fair knowledge of the Koran. He stands in front of the mosque at sunrise and at noon to call the pupils.

School is held from sunrise (*sba*) to ten o'clock (*d-har*), and from noon (*d-hor*) to about four o'clock (*asr*). The pupils have Thursday afternoons and Fridays off. They have as vacations twenty days at *aid el kebir*, twenty at *aid es sghir*, ten days at *'ashor*, and a week at *haggus*.

The *bone* pays the schoolmaster in barley, raisins, and oil. The amount of each commodity given per year is set in advance. An average salary would be 100 *mudd*[3] of barley,

[1] See p. 100.

[2] This title is applied to two different officials, between whom a distinction should be made, despite the fact that the word *fḳih* is a somewhat familiar one to European readers.

[3] The *mudd* is a measure of both volume and weight, common in all of Morocco. Its value varies from place to place. In Gzennaya it is equivalent to 16 kilos, in Beni Urriaghel 40, in Beni Tuzin 13, in Beni Amart 35, and in Beni Said 30.

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2 or 3 measures (18 liters each) of oil, 20 to 25 *mudd* of raisins, and two pounds or thereabouts of butter from each adult man possessing one or more milch cows.

The pupils are supposed to bring money with them on the last day before the vacation; this is for the schoolmaster. Each pupil brings half a dollar at *aid el kebir*, a quarter of a dollar at *aid es sghir*, ten *soldi* (two *grush*) at *'ashor*, and fifteen *soldi* (three *grush*) at *el mulud*. At *haggus* the schoolmaster does not collect any money, but the families of the children send him food consisting of chickens, bowls of honey and butter, and various cooked dishes.

During the vacations all the pupils sleep in the village mosque. They wear no jellabas, but dress in clean new shirts girded with Taghzuthi belts of many colors. They go around in a group from house to house in the *bone* and in all the *bones* of the *canton*, and sit in each house to recite a chapter of the Koran. When they have finished, the mistress of the house gives them eggs, chickens, and other foodstuffs. Later they cook these things in the mosque and feast and disport themselves all night. They play games, and often play at being a council, a sultan and his court, or a judge with plaintiffs and defendants.

The *fkih* of the cantonal mosque, the "preceptor," [1] is appointed by the council of the great. When he dies, moves, or for some other reason ceases to be preceptor, they appoint another. He may be a stranger or a native of the *canton*. He is paid annually three to four hundred *mudd* of barley, and butter, oil, and other products in proportion. The preceptor has charge of the land belonging to the cantonal mosque and works it with the warden, or hires share-laborers to work it, taking one half the produce and the mosque receiving half. He thus controls a considerable income.

When the pupils of the *bone* have learned the Koran by heart, they graduate and go to the cantonal mosque. Graduation is called *er kheithmith*, and is also frequently termed "the wedding of the sixty *ḥaiseb*," the sections of the Koran. It does not occur at any fixed time of year; whenever the student has fulfilled the requirements to the satisfaction of the preceptor of the cantonal mosque he is admitted. The graduation is accompanied by a feast given in the student's honor, attended by his family, invited guests, and fellow students. His father sacrifices a cow, some meat from which is eaten. *Seksu* and honey are likewise eaten upon this occasion. The guests usually bring gifts with them. Gifts, in the Rif, usually consist of edibles, and especially things which cost money, such as sugar and tea. Candles are also in this category.

This system of education is widespread, and is found in all the sedentary tribes. Among the nomadic tribes only wealthy men send their children to school, which consists of a special tent occupied by a schoolmaster and moved, when the camp moves, by different men in rotation.

In the cantonal mosque the students [2] learn to improve their writing, since many of them fail to learn to write well in the village mosque, where most attention is paid to memorizing the Koran. In the cantonal mosque they also learn magic, studying obscure books and compiling from the Koran and from other sources charts to be used as lexicons in magic.

[1] So translated to distinguish this *fkih* from the schoolmaster, and partly because the preceptor is a religious teacher as well as an educator.

[2] Students who have graduated from the village mosque are called *ṭaleb* (plural *ṭolba*). Since in the text the pupils attending the village mosque have in every case been specified as such, there is no need for qualification of the word *student* as used in translation of *ṭaleb*.

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One of the principal occupations of the students consists in copying the books of the preceptor, since it is impossible to buy books, and the only way to accumulate a library is to copy it off by hand. In order to get a greater variety of books students often travel from *canton* to *canton* through many tribes.

Some of the books are in Arabic and some in Berber, not necessarily of Riffian dialect. Many are in the dialect of the Sous. Most of the books deal with magic and religious problems, but a few of them deal with history and geography. There are also books written in a numerical code, called *el ughabari*, which the students use as a secret means of communication. There are many different kinds of *el ughabari*, and many different codes, but all are based on numbers. Another system is to use a set word for each letter in the alphabet, and to spell out the message, a word for a letter. This system is used in speech as well as in writing, and has the disadvantage of being very lengthy and tedious. It is called *er unsas*; students use it when they want to say something uncomplimentary about someone present.

Students travel from mosque to mosque in order to absorb the learning of different preceptors who have specialized in different subjects. To obtain what is considered a well-rounded education a student must thus fulfill a considerable itinerary. Some preceptors are popular and draw crowds of students from all over the Rif; others teach the local students only.

Wandering or visiting students are fed by the people of the *canton* in which the mosque is situated. Families send food every day to the mosque. Goats are often sacrificed in cantonal mosques containing saintly remains, and the students and their preceptor take half the meat, giving the warden the other half.

There is no fixed time for the completion of studies in the cantonal mosque. When a student is satisfied with his state of erudition, feels that his share of labor is needed by his family, or wishes to marry, he simply stops going to the mosque and spends his time farming instead. Most students stop when they get married; those who continue after marriage do so with the intention of adopting a professional career. Some prefer the indolent, wandering life of the student to the restrictions imposed upon them by marriage, and roam about, living off the land, until they are old. In most cases the latter type of student goes sooner or later to the Jebala and affiliates himself with some religious brotherhood.

Besides being fed by the *canton* in which they study, the students earn money by tailoring and embroidering jellabas, shirts, trousers, and other garments. Ex-students usually embroider their wives' garments for them. They also earn money by chanting from the Koran at funerals and weddings. They are immune from physical violence, and can pass from tribe to tribe with impunity, no matter what the state of affairs may be, except during those periods when the tribal council fails to meet and all law has gone from the land.

A student who aspires to become a *ḳadhi*, or "judge," must attend either the mosque of Sidi Bu Daud in Temsaman, that of the Beni Mejrau in Beni Zerwal, the university at Tangier, or the Kairawiin university at Fez. At the Kairawiin the student enters the secular, not the religious, college.

Whichever of these institutions the student attends, he studies law and related subjects until he has qualified himself as a judge and has obtained a certicate to that effect from the head of the institution. Formerly very few Riffians studied in Fez, but in recent years the number has been increasing.

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Riffian students deport themselves more or less in conformity with Riffian ideas of morality and decorum. They enjoy practical joking and general jollification, but do not indulge in the hashish smoking and sodomy practiced by students from the Jebala, who bring with them boys ostensibly serving as musical apprentices. Before European occupation, these western students did not meet with a warm reception in the Rif. They were frequently refused entrance to some districts. In others, so many jokes were played upon them that they left hurriedly and never returned.

On one occasion, Jebalan students entered the mosque in a *canton* of the Gzennaya, leaving outside a mule which they had brought with them. They asked for food, and ate more than was thought necessary by the men who provided it. When they asked for more food, one of the men went outside, cut a slice of meat from the mule's rump, cooked it, and then brought it in. The students ate it. One of them, going outside to feed the mule, found its condition, whereupon the students left immediately, and few of their type have come there since.

Since European occupation, the Riffians have been prevented from excluding the students of the Jebala by such rigorous means. At present many of these undesirables are found in the Rif, to the consternation of the powerless inhabitants, who fear that they will spread their vicious practices among the younger generation.

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CHAPTER X

JUDICIAL AND CLERICAL OFFICERS; LAWS GOVERNING INHERITANCE

THERE are in the Rif two classes of officials who concern themselves with judicial and clerical functions: the "clerk," or *adl* (plural *adul*[1]), and the "judge," or *ḳadhi*. The former is something between a town clerk and minor judge, and the latter a supreme court of appeal. Both concern themselves only with civil, never with criminal, disputes.

The clerk is a former student who specialized in the cantonal mosque in the study of law, rather than in the usual study of magic and religion; some clerks, however, indulge in magical practices on the side as an additional source of income. The clerk takes pains to keep this second profession secret, lest he be expelled from office. Most clerks spend longer than the average period at study, and attend several different mosques in the course of their preparation.

There is at least one clerk in every *bone*. Any person who is qualified by his training may set up as a clerk, but must receive the consensus of local approval before he is entrusted with enough business to make this occupation profitable. A clerk must be dignified and pious.

The clerk is often the schoolmaster of the *bone* as well. In smaller *bones* it is usually an economic necessity for one man to fulfill these two offices, consequently the terms "schoolmaster" and "clerk" have become somewhat confused. A clerk is often called schoolmaster, but a schoolmaster who is not a clerk is never called clerk.

The duties of the clerk include writing and reading letters for illiterate persons, settling controversies as to ownership of property, making out and administering wills, and drawing up documents of sale for landed property and documents of marriage and divorce. He is also called upon to slaughter animals upon ceremonial occasions.

In making out a document of marriage, the clerk writes out the names of the bride and groom, and the amount paid for the bride. He gives the paper to the bride and makes a duplicate, which he keeps. His signature renders the document valid. He similarly makes out divorce papers, which he gives to the woman, who can thus prove that she is no longer under obligation to her husband.

When the clerk makes out the document for a land sale, he takes the old document from the seller, and gives both old and new papers to the purchaser. Each time a piece of land changes hands a new paper is made out, and the present owner has in his possession all of the extant bills of sale for that piece of land. When a piece is subdivided the heir of the owner of the original piece at the time of its subdivision keeps the papers recording transfers prior to this subdivision.

When a man wishes to sell some of the land which has been in his family since time immemorial, and for which there is no paper, he informs the clerk, who advertises for any other claim to this land, either written or oral, and finding none makes a bill of sale.

[1] The usual Arab notary.

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One of the clerk's most troublesome duties is keeping track of irrigation property. If a stream commences in the property of a certain man, that man has the right to build a ditch within his own property to irrigate his own fields, and that water belongs exclusively to him. If he wishes to sell the rights to some of the water to a neighbor, he allows the neighbor to lead water off the stream below the place at which he leads off his own water, and likewise allows this neighbor to build a ditch across his land to the purchaser's field. The purchaser must pay for the water rights and for the narrow strip of land on which the ditch runs. The clerk makes out papers for the transfer of these rights, and signs them.

He also makes out papers for other irrigation complications. One man may sell the right of one day's water per year to another man through whose land his ditch passes. If a ditch is led off from a large stream which flows through a number of villages, no one owns the original water, but any man who constructs a ditch from it has the right to the water which is led off, once he has paid for the land which the ditch crosses. Men who construct such ditches usually sell so many shares in it that in time it becomes almost communal. The shares are sold on the basis of so many day's water a year per man. If a dry year comes or the water is low, each man receives a reduced share of the water proportionate to his original allowance.

If a ditch owner has allowed another man to lead off part of his water into another ditch, under time limit or restriction, when a season of drought comes they take turns, day by day, so as to divide equally what little there is of it.

If in a series of step-terraces, built one above the other, an avalanche covers more than the top one, the owners of all the terraces in the series have to work together to remove the stones. If a cloudburst pushes these same terraces down the side of the mountain so that the top one has lowered its position, and the bottom one has fallen into the stream and its earth been washed away, the owners of the terraces go to the clerk and find out exactly how much of this particular terrace land each of them possessed. If they each owned a third, the clerk measures, with string, what arable land remains, and divides it up proportionately, so that the order of ascension is the same as before, but the area of each is proportionately reduced. If, however, the bottom one suffers loss through the action of the stream and nothing has happened to the upper ones, the owner of the bottom terrace has to suffer his loss alone. Any small loss of earth or manure due to a storm may not be recovered; the owner of the lower terrace into which it has been washed may keep it. If the boundary wall between two terraces has been broken in by the storm, and dirt has washed over the stones, making the boundary questionable, the clerk comes with the papers of the original sale and a cord, and measures the terraces anew. Then the owner of the upper terrace must build another retaining wall, and cannot recover the earth which he has lost, unless, as above stated, the upper boundary of his land has slumped downhill and the bottom terrace has fallen into the stream.

When a man's tree thrusts its branches over a boundary so that it hangs over another man's land and makes shade on it, preventing the growth of grain or vegetables, the owner of the shaded land may protest and demand that that part of the tree be removed. The clerk forbids cutting it, however, and orders the owner of the tree to give a fourth of its fruit to the other man.

The clerk also keeps track of the olive press, and of the succession of those entitled to use it. If a neighboring *bone* has no press he lets it use the one in his territory, before the

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actual owners of the machine are allowed to do so; and he collects from them the customary divisions of the oil which they squeeze. The village council of each *bone* makes out the list and the clerk writes it down and sees that it is followed.

Another duty of this latter official is making out papers of adoption for strangers who come into the *bone* to live and who wish to become affiliated with it.

The clerk also has charge of wills and inheritance. The head of each family may make a will on his deathbed, or at some time when he fears imminent death. To do this he summons the clerk, who writes down the terms of the bequests and takes the paper away with him. After the man has died he produces this paper, makes its contents public, and administers the estate.

Although most men, in making their wills, follow the traditional rules of inheritance, some bequeath their property unequally among their heirs, at times cutting individuals off entirely, and leave property to mosques or saints' tombs. No man is permitted, however, to disinherit his wife or wives.

In each tribe there is supposed to be a judge, appointed by the tribal council, and holding his office for life or good behavior. He has received a diploma from one of the four institutions previously mentioned. His appointment does not usually come, however, until long after his fulfilment of the requirements for this position. He is almost always a native of the tribe in which he is employed.

There was one in Beni Urriaghel, one in Beni Tuzin, and one in Gzennaya, at the time the Christians entered. The first judge in the Rif in modern times was Si Abd el Rahman of the Beni Yunes of the Gzennaya, who had dwelt long in Fez and married a Fezzi wife. The Gzennaya and Beni Urriaghel decided, about fifty years ago, that they would like to have a judge, and therefore sent men of the Gzennaya to Fez to persuade Si Abd el Rahman to come. On the way back from Fez, the Beni Ulid, who did not know that he was a judge, attacked him and his bodyguard in the night, killing him and capturing his wife and children. What remained of the bodyguard returned to the Rif and called together a great council of the tribes of Gzennaya, Beni Urriaghel, Temsaman, Beni Tuzin, Beni Amart, Beni Ulishk, Beni Said, and Metalsa. All these councillors, with their retainers, invaded Beni Ulid and devastated it, taking back the prisoners and loot, and exacting a fine of four thousand five hundred dollars.

Si Abd el Rahman's eldest son was made judge in his place, after him his brother, and after his brother his sons, in turn. Beni Urriaghel and Beni Tuzin later each established a judge, certified by that of Beni Yunes. Several others were set up and deposed in later times.

Every year each *fifth* presents the judge with a cow, five or six goats, and large quantities of all staple agricultural products. The judge in this way receives a large income, but is expected to spend most or all of it on hospitality. He settles disputes concerning landed property. Contestants bring their papers of ownership to him, and he decides which one really owns the property, then signs and seals the paper of the winner. The plaintiffs bring him presents of meat and sugar — any further gift would be considered bribery.

In the Senhaja Sghir the Sherif of Targuist acts as judge, except in Taghzuth, where there has been a judge for generations. Until the time of Abd el Krim, however, the judge of Taghzuth was influenced by the Sherif of Targuist.

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Laws Governing Inheritance. The following are the traditional rules of inheritance, usually adhered to in wills, and always followed when a man dies intestate:

1. The widow or widows receive an eighth of the property. This eighth is divided equally among the widows in case there are more than one.
2. The children collectively receive the remaining seven eighths. Each boy receives twice as much as each girl. In all of the following cases in which property is inherited jointly by brothers and sisters, the same principle applies, *i. e.*, equality between brothers and equality between sisters, with one brother counting as equal to two sisters.
3. When one or more of the children have died before the father's decease, the share of each dead child is counted out as well as that of each living child. The share of each dead child is divided into two equal parts, one of which is given its mother and the other divided in the usual manner between the living children.
4. In case there are no living children, the brothers and sisters of the deceased inherit the property which would otherwise go to these children. In other words, if the children have all died, the brothers and sisters of the deceased receive one half of the seven eighths left over after the widows' allowance has been deducted. If there never have been any children, the whole seven eighths goes to the brothers and sisters.
5. A childless widow returns to the *vein* of her parents, and may marry any man whom she wishes and who desires her. She may keep the property which she has inherited from her first husband after she has married her second.
6. A widow who is the mother of unmarried or dependent children is expected to marry a brother of her deceased husband. If she refuses to do so, she is not allowed to marry anyone else, unless her brother-in-law is willing to marry and divorce her, or to announce publicly that he relinquishes her. In case she marries a man who is not her brother-in-law, she loses her rights to her children, who go to live with her brother-in-law; but she still retains her rights to the property left her by her deceased husband. In case she does not want to remarry, either because her brother-in-law will not free her or for any other reason, she can go to the clerk, who will give her a document making her legally incapable of marrying in the future. This will protect her against her brother-in-law, or against suitors in general, as the case may be.
7. Widows whose children are grown up and married live with their sons, who support them.
8. When a woman dies who has been married more than once and has borne children by each marriage, the children of each marriage divide the property of the respective fathers, and all of them divide the property of their mother.
9. When a woman with children marries a man who has never been married, and bears no children to this second husband, the children of the woman inherit the property of their stepfather just as if he were their real father, provided that he has not in the meanwhile married another wife and had children by her, in which case the stepchildren receive none of his property.
10. When a woman who owns property dies, her children divide it in the usual way. If she leaves only girls, her own family gets half and the girls the other half. The half which goes to her family is divided between her brothers and sisters. If she has no brothers and sisters, as well as no sons, her father takes it; if she has no father, her mother takes it; and if she dies without relatives the *bone* divides it between the married men.

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11. **Girls who have inherited property must give it up when they are married. They give it to their brothers, or, if they have none, to their paternal uncles or masculine paternal cousins. After marriage they cannot inherit except from their husbands.**

12. **When a man dies without near relatives in the *bone* his property is divided among those distantly related on the paternal side; in case the deceased was a stranger who took up residence in the territory of the *bone* and has taken out with the clerk a paper of adoption into it, his property is divided among the married men of the *bone*. If he has neglected to take out a paper of adoption, his relatives from afar have the right to come and claim his property.**

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CHAPTER XI

CRISES IN THE LIFE OF THE INDIVIDUAL

Sociologists commonly recognize three major crises in the life of each individual: birth, puberty, and death.[1] Besides these major or biological crises they recognize others which lack direct biological importance, but are nevertheless sociologically of interest: naming, circumcision, and marriage. In the Rif, the first haircut should be added to the list and puberty subtracted, since no recognizable rite of passage is used to conduct the adolescent into the state of manhood or of womanhood.

In discussing these crises, my object is not so much to present a detailed picture of the ceremonies which accompany them as to work out a thorough plan of distribution for the various elements in each rite, in order to determine, where possible, the origins and relative antiquity of the various factors.

BIRTH

When a woman is considered to be within three days of the expiration of her term of pregnancy, the other women of her household go to the cantonal mosque and there hire a student to make out a charm which will help facilitate the birth. This charm is written, and the writing, soaked off the paper in warm water, is given the mother to drink. Care is taken to see that no knots are tied in the mother's clothing, and she is not allowed to work nor take any strenuous exercise during the last few days of her pregnancy.

On the actual day of the delivery, two midwives take charge of the situation, expelling the men of the family from the room in which the birth is to take place. One of the midwives sits on the floor, and holds the mother in her lap, in a posture half way between sitting and lying, and the mother meanwhile pulls on a rope which has been suspended from the rafters. The woman underneath her grasps her about the abdomen with both hands, helping thus to expel the child.

The Riffians explain the presence of the midwife underneath the mother by saying that it is shameful for a woman to bear a child while lying on the floor, since that is the manner of cattle.

While the mother is hanging by the rope, and the midwife under her is compressing her abdomen, the second midwife busies herself with the details of the actual delivery. When the child has been born, this second midwife cuts its umbilical cord with a pair of scissors, and afterwards goes outside, taking care not to be seen, and buries the afterbirth, the umbilical cord, and the scissors in a hidden place, which she is bound never to reveal, lest some enemy find the remains and with them wreak baleful magic upon the child.

The midwife who delivers the child and cuts the umbilical cord, and to a lesser extent her assistant, who does the heavier if cruder part of the work, is held in especial esteem by the child in its later life. The child may later even address the midwife as "mother," and

[1] A. M. Tozzer, *Social Origins and Social Continuities*, pp. 86–89.

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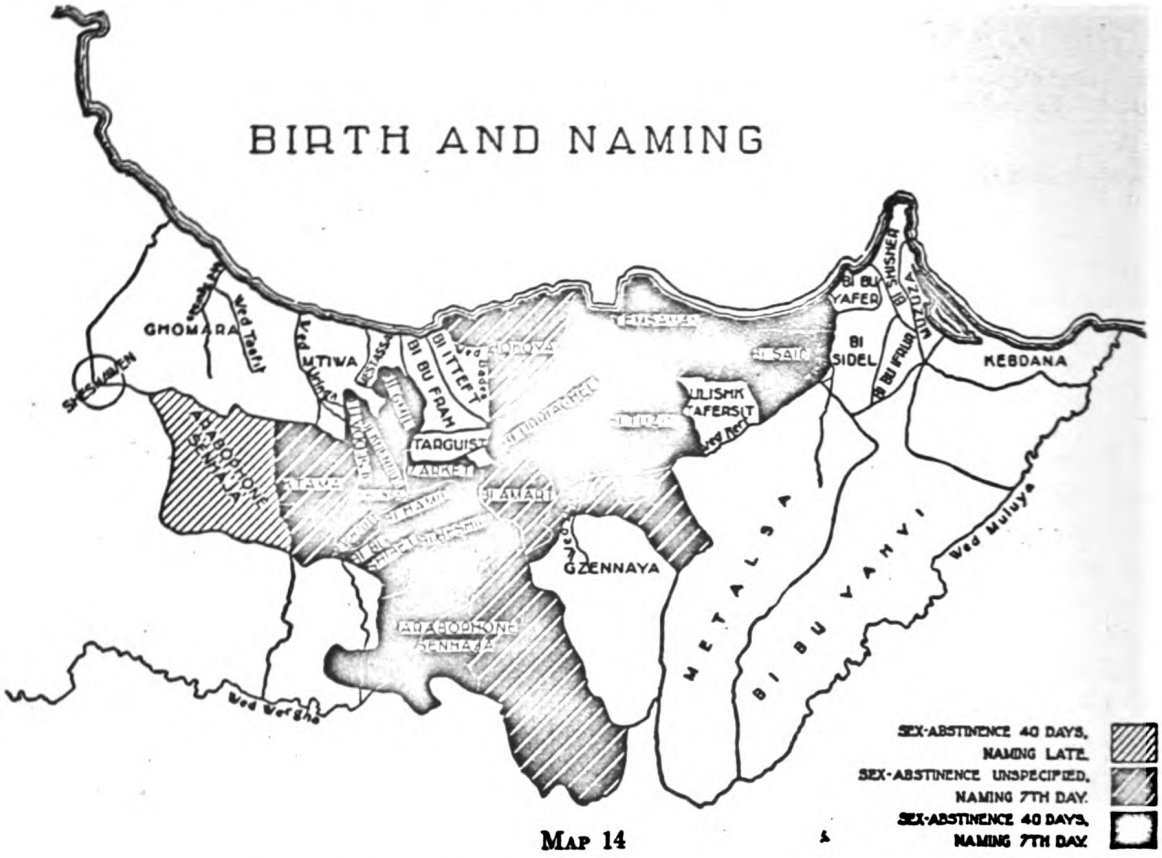
care for her as he would for his real mother. Midwifery is both an honorable and a charitable profession; midwives are respected by everyone, and receive no fees for their work.

The birth of twins is considered a great felicity.

If the mother is found to lack sufficient milk for suckling her child, another woman, usually of the same *bone*, takes charge of its feeding. The foster-mother is later considered by the child as an alternate mother, and marriage between a child and a foster child of the same woman is considered incestuous and is forbidden.



MAP 14

Let us return to the father, who has been unceremoniously bundled out of the room. When news of the impending birth has been spread abroad, the entire adult population of the *bone* comes to the house, the women going into the actual birth chamber, and the men joining the father in another room or, if the house contain but a single room, in the court-yard.

Before the assembled men, the father sacrifices a sheep or goat, the meat of which is put on the fire to stew. In the meanwhile the father produces a large bowl of *seksu*, which has been awaiting this moment, and the guests eat this with despatch. When they have finished this first course the stew made from the sacrificial animal is served. When this is over the father serves tea.

This meal, which usually is served during the afternoon, suffices until night, when two others are served. These are necessary, because the men sit up all night firing off guns, in

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case the child is masculine, having begun the fusillade at the moment of the delivery, or at the moment when the sex of the child was announced.

The women who come with their husbands bring with them chickens and other articles of food, especially wild greens such as watercress and asparagus, if these be in season. The women install themselves in the room in which the birth has taken place, and prepare nourishing broths for the mother, and for the next week or so continually come in and out looking after her.

On the seventh day the father holds a second celebration, similar to the first, which may be in many cases simply a continuation of it. On this seventh day, the guests, when they have finished drinking tea, each put a silver dollar on the tray; this money is intended as a present to the mother, who may spend it as she pleases.

Among the central Riffians the father is not allowed to have sexual intercourse with his wife until after the expiration of forty days after the birth of the child. During these forty days he avoids her as much as possible, seldom entering the room in which she has borne the child and seldom speaking with her. From economic necessity it is unavoidable that he should see and speak to her to a certain extent, but the tabu is nevertheless kept as rigidly as possible. Among the other tribes there is no fixed limit for the renewal of sexual relations, the matter being entirely personal, and there is no attempt at avoidance subsequent to the actual day of the birth, although the husband in most instances is kept busy outside entertaining the men for the first seven days, and naturally hesitates to enter his wife's room when a large number of women are there. The sex tabu is found in Beni Urriaghel, Temsaman, Beni Tuzin, Beni Said, Iherrushen (except Tarosht, Telmest) Ikhuanen, Iherrassen, Beni Yunes, northern Ulishk, Zarket, Beni Gmil, Beni Bu Nsar, Beni Seddath, Beni Khennus, Taghzuth, Western Arabophone Senhaja, Beni Hamid, and Eastern Arabophone Senhaja.

NAMES AND NAMING

The second important event in the life of a child, be it a boy or a girl, is the occasion when it receives a name. Among the central Riffians this takes place on the seventh day, the same day on which the final feast celebrating the birth is held. Among the other tribes it takes place later, but usually before the child is more than a month or two old. Naming is done on the seventh day in[1] Beni Urriaghel, Beni Tuzin, Beni Said, northern Ulishk, Beni Yunes, Ulad Alu ben Aissa, Beni Mohammed, Iherrassen, Ikaroen, Inhanahan, Bured, Temjunt, Iherrushen, Ikhuanen, Beni Amart, Bokoya, Taghzuth, Beni Bu Nsar, Beni Seddath, Beni Khennus, Beni Gmil, Zarket, Beni Hamid, Beni Bu Shibet, Beni Beshir, Ktama, Eastern Arabophone Senhaja, and western Metalsa.

A boy child is at this time given a name usually of Arabic derivation and of religious significance, although such is not always the case. The name is frequently a derivative of the root *ḥmd*, meaning "to praise," of which Mohend, Moh, Bohosh, Haddu, Haddush, Hammush, Mohammadi, Hamidu, Hadi, and Omuah are all more or less Berberized variations. Of these, Mohend and Moh are the equivalents for Mohammed.

[1] According to de Castro, the Galiya and Kebdana likewise hold the naming on the seventh day. This information would serve to date the transition from a seven-day to a three-day custom between the time of de Castro's writing (1911) and the time at which my material was collected. See Fernandez de Castro, *Guelaia y Quebdana*, p. 130.

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If a child is named Mohammed, he is called Moh until he is quite grown up, after which he is addressed as Mohend by outsiders, and still as Moh by his immediate family. He is called Mohammed only by Arabs and Christians.

The name Mohammed is not, as has been stated,[1] given to the first son of a union as a matter of form and tradition; the first-born is more often named after his father, but the Riffians do not follow any hide-bound rule, calling their children by whatever names happen to strike their fancy.

Similarly the first girl is frequently, although not necessarily, named after her mother. Common girls' names are Fatima, Fattush, Hammut, Minnush, Mama, Rowazna, Thamimunt, Mona, Aisha, Mammut, Tha'wat, and Hadduma.

Names which are also used by Jews, such as Ishak, Yussuf, etc., are avoided. Musa, the equivalent of Moses, is seldom used, since in *thamazighth* it has the additional meaning of "hunger." Individuals bearing it must be addressed with a magical formula, lest the hunger implied in it befall him who pronounces it.

Sometimes when a child is given his regular or permanent name he also receives a nickname. This honor is, however, generally reserved until he has developed enough to exhibit distinctive and individualistic traits of appearance and behavior. The Riffians are very clever at finding resemblances and at picking out distinctive physical characteristics. A list of nicknames follows:

1. *Referring to pigmentation:*

Ashabar	very blond
Shu'uat	yellow-haired
Awara	yellow-haired
Shihibun	albinotic (literally, wool-like)
Azarkan	light-eyed (This title is often given to persons with mixed eyes. It really means that the person's eyes are not brown.)
Azgwau	red-haired
Aberkan	brown-eyed
Akarkash ...	freckled

2. *Referring to size:*

el Finsh	tiny
Ahathid	very small (This name is given when the child is very small at birth.)
Amzien.....	small
Azghirar.....	tall
Bu thsghund	very tall (the father of the rope)
Ksbata	giant

3. *Referring to characteristic form, usually exaggerated:*

Akaroa'	big head
Bu 'jif.....	big head (in at least one case, applied to a hydrocephal)
Bu shkort ...	hammer-headed (dolichocephalic)
Akhenush ...	pot-headed (brachycephalic)
Bu krish.....	big paunch
Athemran ...	fat
Bu aziw	exceedingly fat
Zughdud *or* Mutaish ..	skinny
Bu imzoghen	big ears
Bu wenzar	big nose
Bu thaghumesth..	big tooth
Amtals	looking like a typical Metalsa man

4. *Referring to pathological conditions:*

Akshar	scab-head (a victim of scalp disease)
Aidar	lame
Ath-hashor	deaf

[1] E. Westermarck (*Ritual and Belief in Morocco*, vol. II, p. 404) says: "The first-born son is very frequently called Mohammed, and in many parts of the country invariably so, unless he has been born after the death of his father or a saint has been asked to bring him into being; but even in the latter case it is in some places the custom to give him that name (Demnat, Ait Wäryäger)." In 1928, after having read this selection, I inquired into the matter while visiting the Beni Urriaghel, and was unable to confirm Westermarck's statement.

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Bu tha'arur	hunchback
Bu thumzoghth ..	possessor of a single ear
Athagheir	one-eyed
Amarzu	wounded in leg or arm
Koshih	hand will not open or shut

5. *Referring to habit and occupation, and miscellaneous:*

Thahowat	midwife
Belezghai	stingy (literally, dry)
Amarsgiw	bad, naughty
Bu kiur	wears long hair
Sheikh	musician (also applied to actors in the Carnival)
Harrami	crafty, tricky
Bu rezza	wearer of a large turban
Bu shasana	cultivator of many *shasana*
Derras	weaver (with the horizontal loom)
Bu ghiur	owner (literally father) of a donkey
Akenniny	rabbit, implying fast runner
Shaitan	demon, bad boy, brigand
Bu zelmat	left-handed
Aowsa	old man
Ishen	twin
Oshun.....	wolf, jackal, crafty

Besides the names which have a religious significance or secular Arabic derivation, such as the *ḥmd* group, Ali and its derivative Hari, Amar, 'Omar, Abd el Kadher, Mimun, etc., there exists a body of names without known meaning, and said to be of ancient usage. Such are Abekri (plural Ibkretin), Windish (plural Indishen), Belash, Khartit, Wiginas, Ashor. These names are said to date from pagan times, and may be derived from earlier languages or from an extinct form of Berber speech.

Besides the name given in infancy and the nickname (which may be given at any time and is the most common appellation of the individual) there is the patronymic or matronymic, used only on formal occasions, such as the drawing up of documents by the clerk. A man's formal name is his given name, plus the name of his father, and a woman's is her given name plus the name of her father. The idea of *son* is either left to the imagination or expressed by the genitive particle *n* or the filial particle *th*. The filial particle *u*, typical of the Braber, is not frequently used in the Rif, except in names of social groupings.

When an ancestor of a certain *vein* or even *bone* has left a reputation which his descendants wish to perpetuate, his name, no matter how remote he may have been, is placed at the end after the patronymic. Such is the case, for example, with the families of Indishen and Oshannen, who have virtually acquired family names in the European sense.

Although the Riffians are regularly patronymic, matronymy is found under certain set conditions. If a child's mother is noted for some skilled accomplishment, the child is called "So-and-so the son of the midwife," or whatever she happens to be. Besides midwives, female doctors and women who habitually led the dance before marriage are thus honored. Again, a boy bears his mother's name if she be a native of a different *bone* from his father, in the case of patrilocal residence. In the case of matrilocal residence he usually bears his father's name, but instances are known of the use of the matronymic in cases of matrilocal residence.

When, then, a boy bears his mother's name, as a result of an exogamic marriage on the part of his father this may be the mother's own name or that of her *bone* or *canton*, put in the singular and with the gender reversed. Thus, the son of a woman from Iherrushen would be Moh n Taherusht; from Iherrassen, Moh n Taherast; from Temjunt, Moh n Chimjun; from Ulad Alu ben Aissa, Amar n Charu n Aissa, an actual name.

The occurrence of matronymy, which might lead one to the supposition of an early matriarchate in the Rif, can thus be explained completely on the basis of exogamy and of distinctive trades on the part of the mother. Naturally, Riffians bearing matronyms do not

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use them when in the presence of Arabs, lest the purpose of these names be misunderstood, for the Arabs would think that a man bearing his mother's name was illegitimate, and would ridicule him. For this reason the use of matronyms will probably soon die out.

Besides regular names, certain titles are in use. *Si* is prefixed to a man's name if he be a preceptor, schoolmaster, or clerk, or even a student proficient in reading and writing. *Sidi* is applied only to a reputed descendant of the prophet. The equivalent title *Mulai* is not known in the Rif, but is in use in the Senhaja Sghir, especially in Taghzuth, where a large part of the population, justly or otherwise, claims Sherifian blood.

THE FIRST HAIRCUT

The next event of importance in the life of the child is its first haircut. In the central tribes and the Senhaja it occurs after the expiration of a year; among the others, after six months. The former is the case in Beni Urriaghel, Beni Amart, Gzennaya, and all the Senhaja.

On the day decided on for the first haircut, the father takes a goat to the cantonal mosque and gives it to the students, who sacrifice and eat it. One of the students returns with the father and shaves the child's head, leaving a single lock standing out on the occiput. With some of the hair he makes a necklace, which is tied around the child's neck; the rest he takes out with him and buries secretly. After this the father and mother and immediate family, generally the entire *vein*, hold a small feast.

The scalp lock which the student has left is kept uncut until the death of the individual, and after that event is used by the students washing the body as a convenient handle wherewith to turn the corpse without touching the flesh. The origin of the Berber scalp lock is lost in antiquity, since it is one of the earliest features of Berber culture to be recorded in history.[1]

The position of the lock on the occiput differs among the tribes, there being three places where it may be left; the right occiput, the left occiput, and the center of the occiput, just below lambda. The lock when worn on the left is called *thazhtoshth*, when on the right *thai'iyeshth*, when in the middle *themzurth*.

Distribution of the left scalp lock: Metalsa, Beni Bu Yahyi, Shawia, Jebarna. It is also worn by the Ulad Stut, Beni Ukil, the Arabs of Msun, and the Beni Znassen. It is called the Zenatan type.

Distribution of the right scalp lock: Galiya, Kebdana, Beni Said, Temsaman, Beni Ulishk, rest of Gzennaya, some in Tafersit, Targuist, Western and Eastern Arabophone Senhaja, Ktama, Taghzuth, Beni Bu Nsar, Beni Khennus, Beni Seddath, and Beni Hamid. This is called the Senhajan type, and is worn by the Beni Zerwal, the Mtiwa dial Jbil, and by what few individuals of the Ghomara occasionally leave this lock. It is likewise worn by certain families of Fezzis, and by all of the Braber, who claim Senhajan origin.

Distribution of the median scalp lock: Beni Urriaghel,[2] Beni Amart, Bokoya, Maritimes, Zarket, Beni Beshir, Beni Gmil, Beni Bu Shibet, and Beni Mesduy.

[1] Bates, pp. 134–137.

[2] Westermarck (p. 413) states that the Beni Urriaghel wear the lock on the *right* side, and that this lock is called *dămzŏrţ*. I have never seen an Urriaghli with his scalp lock anywhere but in the middle of his occiput; and the word which Westermarck uses to denote the right lock is really the name of the median lock.

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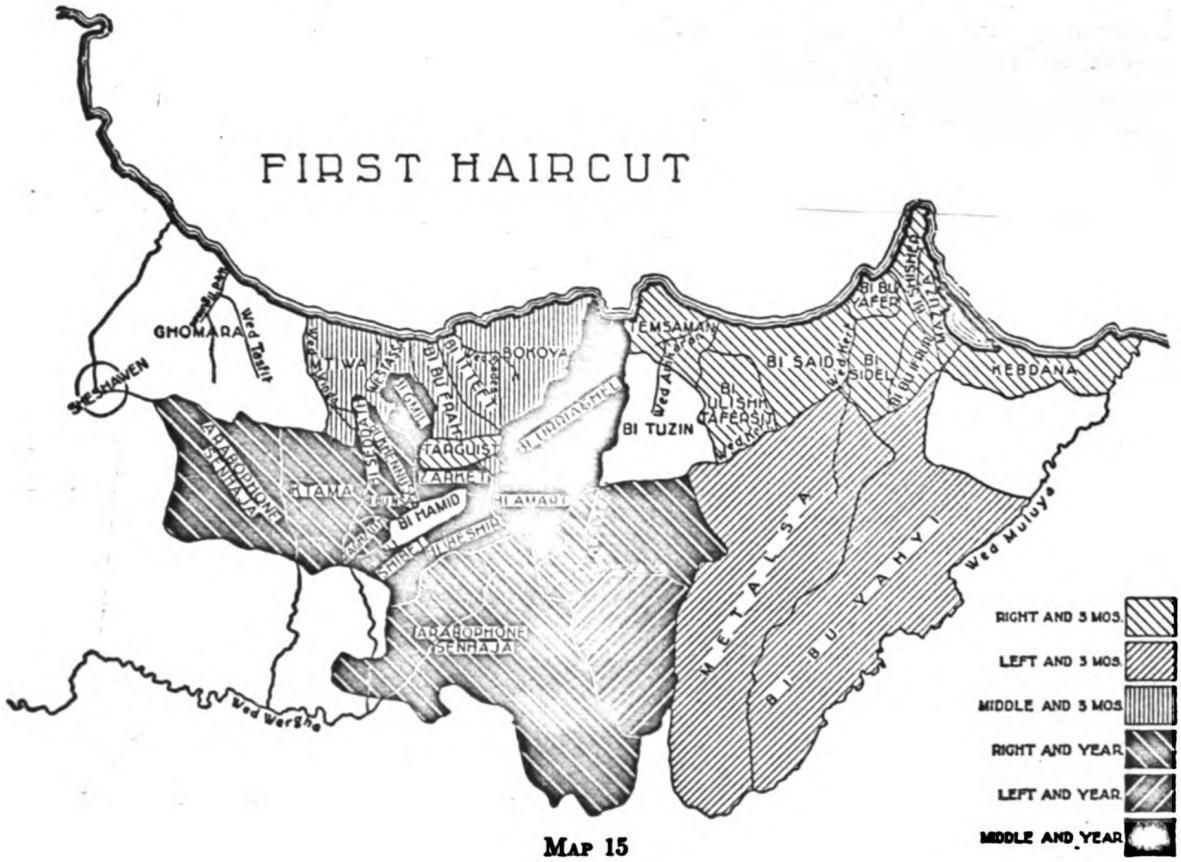
Tribes which shave the head: Beni Tuzin, some in Targuist, and most of those in the Ghomara.

In most of Morocco, the scalp lock is worn by the boys up until puberty or marriage, when it is removed and the head shaved thereafter. In the Rif and Senhaja it is worn not only by boys but by grown men. In Beni Tuzin, and among most of the families of Targuist



MAP 15

and the Ghomara, the head is shaved at the time of the first haircut, and kept shaved thereafter. In Beni Urriaghel, Beni Amart, Iherrushen and Ikhuanen the men shave their faces; in other regions beards are usually worn.

By decree of Abd el Krim, who perhaps wanted to make his followers appear more civilized, the scalp lock was ordered removed in 1924. All Riffians and Senhajans within reach of Abd el Krim's punishing arm shaved them off, for the most part with considerable reluctance, with the exception of the exiled Riffians living in Fez and other places, who retained them. After Abd el Krim's surrender in 1926, many of the Riffians let them grow again, and now wear long scalp locks as before; others let their hair grow in the European style, and still others continue shaving their heads.

The Berber scalp lock dates back to Libyan antiquity; representations of it are frequent on Egyptian monuments.[1] A median occipital lock is also worn today in Northern Albania.

[1] O. Bates, *The Eastern Libyans*, pp. 133–137.

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CIRCUMCISION

Despite the statement of Rohlfs to the contrary,[1] all the peoples of northern Morocco circumcise. This operation, although it may be performed at any time of the year, is usually carried out either in September, when the grapes have been picked, or in mid-winter, when it is considered that the cold will prevent infection. On account of this seasonal occurrence of the rite it is impossible to state definitely at what age it is performed. Nevertheless there is a significant difference in the ages at which it is carried out in different tribes, tribes of the central Rif usually performing it when the child is less than a year old. Three months is considered a felicitous age, but naturally the child is not always three months old at one of the favored times. Among the Arab-speaking peoples of Morocco it is usually performed at the age of seven or eight years. Circumcision is performed in early infancy in Beni Said, Beni Tuzin, Temsaman, Beni Amart; all the Beni Urriaghel excepting Beni Hadifa, all of the Gzennaya excepting Shawia, Imsdurar, Inhanahan, and Iharshliyen, all the Senhaja Sghir, all the Eastern Arabophone Senhaja excepting Fenassa, Beni Koraa, and Rgheiwa, and all the Ghomara.

In all the rest of the region under consideration circumcision is carried out during the seventh or eighth year. It is interesting, from the point of view of comparison with other peoples, that the Arabs and Shluh circumcise at the age of seven or eight, that the Zenata, as represented by the Beni Znassen, put it off until just before marriage, and that among the Braber three separate customs are found: circumcision at seven or eight years, at the period immediately preceding marriage, and, among some groups, I have been told, failure to circumcise at all.

In regard to the person who performs the operation, here again we meet with a difference of custom. Among the central Riffian tribes the act is done by a preceptor or student who makes a specialty of this work, and who has a regular route which he follows twice a year, in September and in mid-winter. Some groups employ local preceptors; others patronize visiting ones from other tribes. Circumcision is performed by local or resident preceptors in Beni Urriaghel (with the exception of the mountain region), Gzennaya, Temsaman, Beni Said, Beni Ulishk, Tafersit, Beni Tuzin, Targuist, Beni Gmil, Beni Bu Nsar, Taghzuth, Beni Hamid, Beni Beshir, all the Arabophone Senhaja, and Ghomara. It is performed by borrowed or itinerant preceptors among the mountain Urriaghlis and in Beni Amart, Beni Mesduy, Zarket, Beni Khennus, Beni Seddath, and Ktama.

The routes or spheres or influence of some of the more prominent preceptors are as follows:

Preceptor of Ajdir: Ajdir and the rest of Aith Yusuf u Ali, Beni Bu Ayesh, Beni Abdullah, and sometimes Imrabten; all these being *fifths* of the Beni Urriaghel, excepting Ajdir, which is a village therein.

Preceptor of Iherrushen (from the *bone* of Ulad Alu Fars): Iherrushen, Iherrassen, Ikhuanen, Ain el Hamara, Ihershliyen, Inhanahan, Bured, and Temjunt; these are *cantons* of the Gzennaya. He likewise officiates for all the Aith Ali and the Jebel Hammam people of the Beni Urriaghel.

Preceptor of Targuist: Targuist, Beni Mesduy, Zarket, and Beni Hadifa of the Beni Urriaghel.

[1] Gerhardt Rohlfs, *Adventures in Morocco*, p. 45.

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Preceptor of Taghzuth: Taghzuth and Ktama.

Preceptor of Beni Bu Nsar: Beni Bu Nsar, Beni Khennus, and Beni Seddath.

In the rest of the region in which circumcision is performed by preceptors, all are local or resident. Preceptors build up reputations for dexterity in their trade, and their clientele of families grows or shrinks like that of family doctors. There are some families of Ajdir who send for the preceptor of Iherrushen instead of employing their own local practitioner, merely out of personal preference. Hence, due to the individual nature of the choice, the routes of the itinerant ones vary, while the distribution of the local ones remains the same.

In other tribes an illiterate man is employed. He performs the circumcision from the secular point of view of earning his living, rather than as an act of religious or magical virtue, as in the case of the preceptor. The lay practitioner is called by the name *akovani*, which means "illiterate" but has acquired the specialized meaning of "circumcisor" as well. The *akovani* is employed by the Kebdana, Metalsa, Beni Bu Yahyi, Galiya, Bokoya, Beni Itteft, Beni Bu Frah, Mestassa, Mtiwa, Beni Bu Shibet. The Arabs of the plains normally use the *akovani*. In Fez, however, a preceptor is employed, as in the central Rif.

The preceptor when called to perform the operation, puts up a white flag on the roof of the house before he enters it, leaving the flag there until the operation is over and he is ready to depart. He takes eight to ten students with him, whose business it is to read the Koran aloud while he is working.

The preceptor and his students enter a special room, taking with them the boy, who has just been washed by his mother. The parents of the child, all women, and all illiterate men are excluded from the room during the operation.

The preceptor greases the foreskin and gland with butter until all is soft and pliant, puts a goat dropping inside the foreskin, which he twists around over it, and cuts off the foreskin with scissors, in such a way that the goat dropping is cut in two during the process.

Then he takes two eggs, the shells of which have been cracked and the whites of which have been drawn off, and thrusts the penis through holes in the shells into the yolks of both. It is said that this is done to cauterize the wound, and any magical significance which this action may imply is probably forgotten. After this has been done an old woman, preferably the child's grandmother, enters and picks the child up, taking him out on her back.

After the operation the preceptor and his students are given a great feast to which many guests are invited.

On account of the danger of infection circumcising is a dangerous practice, and the number of practitioners is few. During the hegemony of Abd el Krim, the preceptor of Ajdir once cut off the end of the gland of a child he was circumcising. If it had not been for the intervention of Abd el Krim, who assessed five hundred dollars blood money, the preceptor would surely have been killed, since the child died shortly after the accident. On account of this incident many families of Ajdir call in the preceptor of Iherrushen, as has been previously noted.

The *akovani* is a different type of person from the preceptor. He is a rough, unlettered fellow, occupying a social position which, while not definitely degraded and certainly higher than that of blacksmiths and market-criers, is yet lower than that of the ordinary farmer. His occupation does not, however, imply Negro blood, and does not carry any social restrictions with it.

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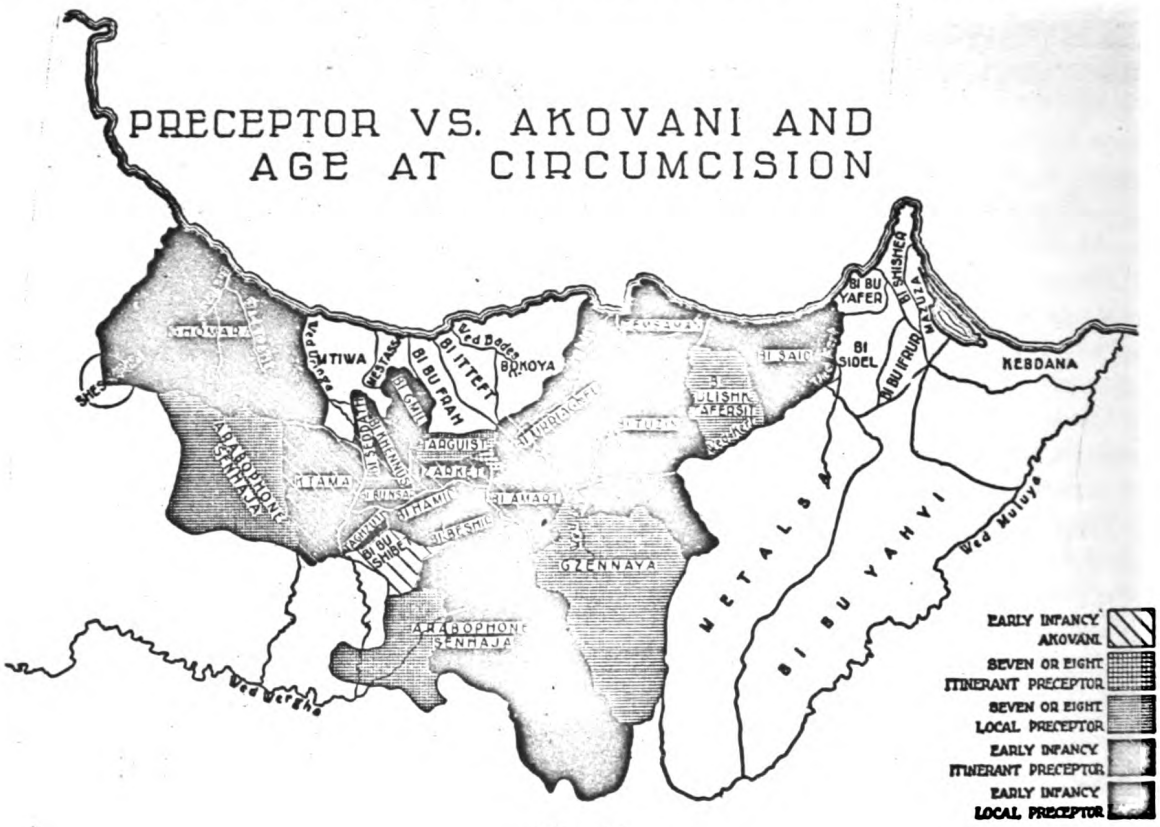
The technique of the *akovani* differs from that of the preceptor. He enters the room in which the child is sitting, without any accompanying students. The child's parents and all men except himself are excluded, but the presence of women is required. Fifteen or twenty of them sit around the room singing throughout the operation. The *akovani* proceeds in the same manner as the preceptor, until the foreskin has been removed. At this point, instead of thrusting the penis into egg-shells, he rubs it with powdered goat manure.

In the process of getting rid of the foreskin, the preceptor and the *akovani* likewise differ. The preceptor puts two eggs in an earthen bowl full of earth, and thrusts the fore-



MAP 16

skin into the earth between the eggs. He hands this to one of the students, who covers the whole with a cloth, and carrying it out into the courtyard gives it to the boy's father or paternal uncle, who takes it out secretly to an unfrequented place and buries it, bowl and all, so that it will never be found. Great care is taken to keep the location of the foreskin secret, and not even the preceptor is trusted with its disposal. The *akovani* does not employ a bowl or eggs, but gives the raw foreskin to the father or paternal uncle, who disposes of it with as great secrecy as in the case of the other technique.

In regard to payment, another difference appears between the preceptor and the *akovani*. The former considers that he is doing a charitable or virtuous work, and never demands payment. If the family is wealthy enough, the father gives him a dollar, a goat, or some article of food. If the preceptor considers the gift a strain on the family resources, he

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gives it back. The *akovani*, on the other hand, depends largely upon circumcising for his livelihood, and is always paid. Among the nomads he generally receives a dollar or two; among the Galiya his fee is fixed at three dollars and a sheep.

MARRIAGE

The wedding rite is an act, or series of acts, of great importance in the Rif, and requires the expenditure of considerable time, effort, and money. It contains more variable elements of custom than any other single social phenomenon.

Before a wedding is to transpire several things must be settled: the identity of the couple, the consent of others interested, the amount of financial compensations to be made, and the date. Both the boy and the girl have considerable choice in the matter, unless their parents feel some strong compulsion dictated by political expediency. Since all women go unveiled in the Rif, and it is freely permitted for boys and girls to talk together, the children have ample opportunity to become acquainted with each other and to form preferences for particular individuals of the opposite sex.

These opportunities for conversation and observation seldom go so far as to include recognized meetings or courtships, but are usually, to the outward eye at least, confined to casual encounters in the course of daily occupations. Assignations are held in the utmost secrecy through fear of shame and punishment if discovered.

By the time the boy has arrived at the age of sixteen or seventeen and the girl at fourteen or fifteen, which are the usual ages at which young people are married, they often have formed distinct preferences and have made up their minds whom they desire to marry. The situation is totally different from that of the Arabs, among whom the groom is not supposed to have seen the bride unveiled until the actual nuptial night. Although the ages given above approximate the mean in this respect, they are by no means fixed. Some boys are married at fifteen; others delay the ceremony until after they are twenty.

A serious student who intends to become a schoolmaster or clerk may not be married until considerably later than the age of twenty. By the time a boy has reached the age of fifteen he has already become uncertain as to his exact age, and by the time he is twenty he cannot usually tell within three years how old he is. This renders impossible any definite statements as to the marriage age.

Marriages are as a rule exogamous between *veins* and endogamous within *bones*. It is considered incestuous to marry the daughter of a paternal uncle, but proper to marry the daughter of a maternal aunt or uncle or of a paternal aunt. In this way cousin marriage frequently takes place, and most of the *bones*, on account of their small size, are thoroughly inbred. Marriage between *bones* involves the alliance in war of the *bones* involved, and hence is often discouraged through fear of the whole *bone* being dragged into a struggle in which it is not personally interested. On the other hand, a *bone* which is not sure of its martial standing and general security may seek such alliances with stronger *bones*. The traditional distaste against such marriages, however, generally prevents them unless there is good reason for their occurrence. Marriage by preference is usually endogamous within the *bone*, unless two *bones* are so close together that intimate acquaintances may arise readily between the children of them. Unions dictated by the performance of a magical compulsion by one *bone* upon another are seldom refused.

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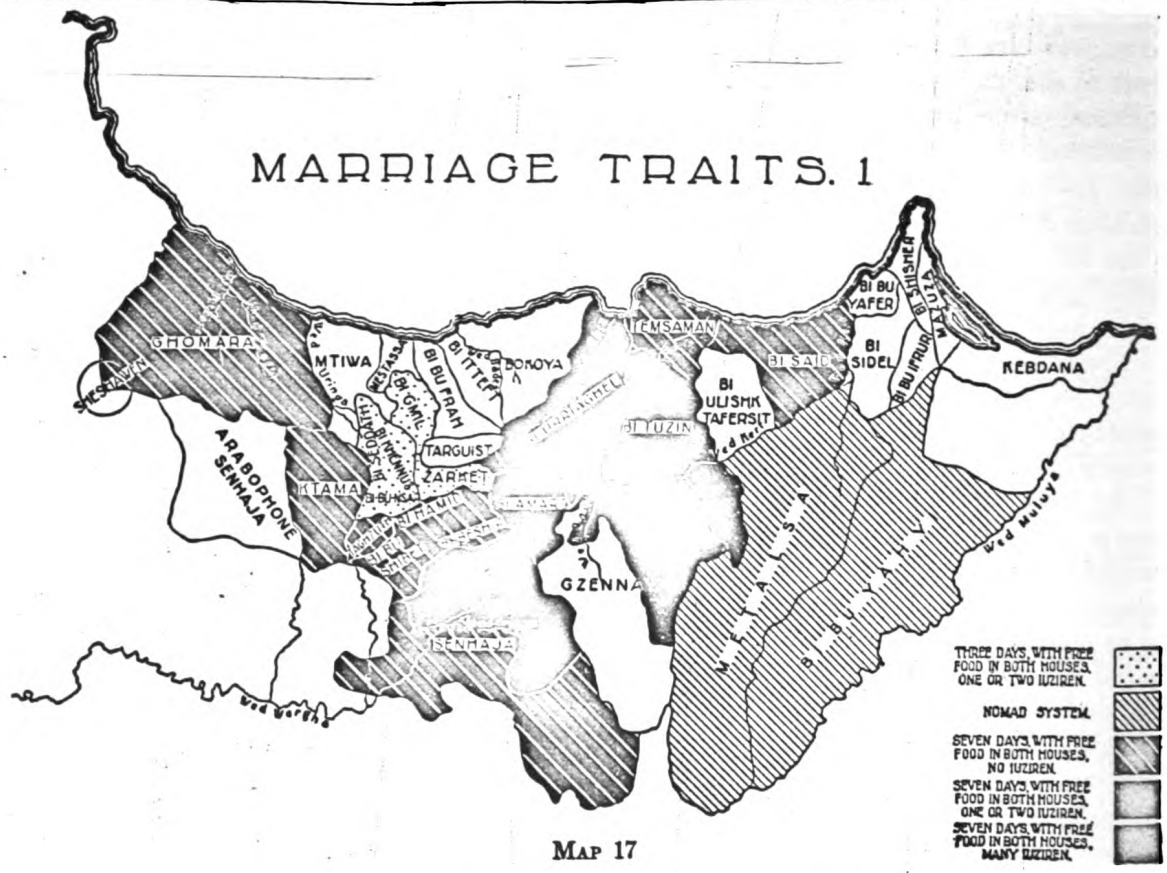
One reason for exceptionally early marriages is the desire of the parents to have their wishes fulfilled before the children are old enough to make preferences and insist upon them strongly.

When a boy has decided which girl he would like to marry, or when his parents have decided for him and have argued him into submission, the boy's mother seeks out the girl's mother in the women's market or in the ordinary market, and broaches the subject in such a circumlocutory way that if the latter does not show preliminary signs of acceptance the



MAP 17

former can change the subject without having committed herself too deeply. If the two women are both willing to have their children wed, the men of the family take the matter up officially. The boy's father, or if he has no father his paternal uncle or elder brother, meets the girl's father in market and proposes it over again; at this time the bargaining over the price commences. This stipend is very variable in amount. Before the war it ranged from one to five or six hundred dollars, until it was fixed by Abd el Krim at one hundred. The amount depended upon the prominence of the girl's parents, as well as upon her own personal usefulness, attractiveness, and character; in case of exogamous marriage her own personal desirability was completely overshadowed by political factors. Today the marriage price has again become variable, but does not attain as high a point as it did before the war, on account of the general poverty and the present disinclination to have children. Before the war marriage was eagerly sought by the *bones*, who wanted to increase

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their numbers as rapidly as possible so as to swell their fighting forces and replace losses. Often this desire caused the marriage of youthful couples who themselves were not yet old enough to desire it. At present, however, since warfare is forbidden, the incentive is lacking.

The price of brides in Taghzuth, as well as in other tribes of the Senhaja Sghir, is fixed at seven dollars.

When the identity of the couple has been established by the consent, at least, of their parents, and in most cases by their own unofficial mutual consent, the groom goes to the clerk in order to obtain the necessary papers, one of which is given to the bride. The wedding cannot be held until the price agreed upon and stipulated in the written contract has been paid. This does not frequently cause a serious delay, because if the groom cannot produce the money some other member of his family will do it for him, expecting him to pay it back later in kind or in labor. Boys who have purchased their wives at the expense of an elder brother may live with that brother afterwards until payment has been made, and until they have built or bought houses of their own.

As soon as betrothal is certain, when the papers have been made out and the money paid, the bride is tattooed. The designs have already been discussed under the subject of material culture, and their distribution shown on a map.[1] The tattooing is usually done gratis by an old woman of the bride's *vein* who is adept at the art. If there is no one in the *vein* competent to do this a woman is called in from some other *vein* and is paid for her work.

This operation is done as soon as possible, because it is desirable that the skin should heal before the wedding. On the other hand, families are usually careful not to have their daughters tattooed until there is no chance of having the wedding called off, since to have an unmarried tattooed daughter on their hands would be as shameful as having an untattooed wife.

The date of the wedding is in some regions limited to a certain season of year, and in others is purely voluntary. Among the central tribes of the Rif, and much of the Senhaja, these festive ceremonies take place only in the month of September, when most of the crops are in, and while the grape picking is going on. Grape picking is a season of carnival; the people sleep in the vineyards, and after and between intervals in weddings the men and women go up to the vineyards, where they joke, shout and shoot off guns, and play games; the men wrestle together, and the women and men form sides and throw stones at each other. The whole aspect of the celebration is one of license, although by this I do not wish to imply that there is a definite practice of a license night. It is only natural, however, that this should be the season for weddings, when spirits are running higher than at any other time of the year. September weddings are the rule in Temsaman, northern Beni Ulishk, all of Beni Tuzin except el Azib of Meidhar, Gzennaya, Beni Urriaghel, Beni Amart, all the Senhaja Sghir except Beni Gmil, Beni Koraa, Bu Adl, Khunduktamda, Fenassa, Beni Wenjin, Marnissa, Beni Krama, and Ulad Azam. In the rest of the Rif, Senhaja, and in Ghomara, weddings take place not only in September but also at other times. In some parts of the September area, this arrangement has begun to break down since the war.

As soon as a groom determines when he is to be married, he chooses a number of his friends and schoolmates, usually about twenty, to act as *iuziren*, a word derived from the Arabic *wazir*, with the implication that the groom is a sultan and the chosen friends his

[1] See above, p. 87.

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counsellors. The bride similarly chooses a group of *thiuziren* from among her friends to act as companions. The period between the betrothal and the marriage is considered full of shame and of supernatural dangers for the participants. Consequently they have to be well guarded, and their *iuziren* and *thiuziren* go about with them whenever they leave their respective houses, which they do as little as possible. When the groom goes out he must keep the hood of his jellaba up, and the bride must keep her head covered. If either of them wears *iherkusen*, or leather slippers, he or she must keep the counters, which are ordinarily bent under the heel, up behind it.

This custom of choosing *iuziren* and *thiuziren* is confined to the central Riffian area and the contiguous regions. In outlying areas one finds regions in which but one, two, or three *iuziren* are chosen, with no *thiuziren*, and others in which no companions at all are chosen. The *iuziren* are several in number in Beni Urriaghel, the portion of Temsaman contiguous with Beni Urriaghel, Temjunt, Iherrushen, Ikhuanen, Beni Amart, Beni Koraa, Bu Adl, Beni Ulid, Fenassa, Beni Wenjin, Marnissa, Beni Krama, and Burda. They are limited to a few in Beni Tuzin, western Metalsa, Beni Mohammed, Beni Yunes, Ulad Alu ben Aissa, Inhanahan, Zarket, Beni Bu Nsar, Beni Khennus, and Beni Seddath. Of these Beni Tuzin have two or three, and the others usually but one. In small *bones* in regions where many are chosen, all the unmarried boys and girls between fifteen and seventeen years of age or thereabouts serve as *iuziren* and *thiuziren*.

The actual duration of the wedding also varies regionally. In the central Riffian area and among the Nomads, a feast is held for seven consecutive nights (in Beni Said, Beni Bu Yahyi, Metalsa, Beni Tuzin, Beni Urriaghel, Beni Mohammed, Ulad Alu ben Aissa, Temjunt, Iherrushen, Ikhuanen, Beni Amart, Beni Hamid, Beni Beshir, Beni Bu Shibet, Taghzuth, Ktama, Eastern Arabophone Senhaja, and Ghomara). In the rest of the territories three nights is the normal duration.

In the seven-night areas, except among the Nomads, food is provided nightly for all the guests; in the three-night areas and among the Nomads, food is provided on the last night only (except in the tribes of Zarket, Beni Gmil, Beni Bu Nsar, Beni Khennus, and Beni Seddath, where food is provided every night). These latter tribes seem to have lost the seven-day tradition while retaining that of continuous hospitality. In any case, food, whether provided on all nights or one, is to be had in both the house of the bride and that of the groom. The groom is supposed to pay for all of it in both houses. Often, however, he is unable to do so, and borrows the money from a member of his family, with the agreement that he shall provide a similar feast on the occasions of the loaner's marriage or shall pay him back when he has earned the money.

During all seven, or three, days of the wedding the bride is closely secluded in her house, and the groom seldom leaves his. Each have their companions with them all the time. In regions where there are no *thiuziren*, the women of the immedate family stay with the bride.

Among the nomads of the Beni Bu Yahyi and Metalsa, the groom, contrary to the usual practice, sleeps in the tent of his parents-in-law all seven nights of the pre-nuptial period. On the last day he returns to his own tent and makes ready for the bride to be brought to him in the evening. This custom forms a common subject of ridicule among the sedentary tribes.

On the first day of the feast the women apply kohl to the bride's eyes and henna to her hands. They first boil a pot of henna, allow it to cool, and place it in a shallow earthen bowl.

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In this they put two cracked eggs. They put a veil over the bride's head and face, and hang strings of silver coins between her fingers. The bride's hands are then thrust into the bowl of henna, and smeared up to the wrist. No attempt is made at forming a pattern. The feet are likewise painted with henna up to the ankles. The women in charge smear the henna on their own hands in order to partake of the magical potency of the bride and of the concoction.

At the same time the hands of the groom are stained with henna. This use of henna is repeated daily in both houses until the feast is over. Neither the bride nor groom is allowed to wash during this period.

Kohl is also applied to the bride's eyes during the feast days, in all regions excepting the central mountain area. It is put on the groom's eyes in the Senhaja and Ghomara and in the east. Kohl is used upon brides throughout the Rif except among the mountain Urriaghlis, Ikhuanen except Tainest, Iherrushen except Telmest, Temjunt, and Beni Amart. It is used upon grooms in all Senhaja, all Ghomara, Targuist, Beni Bu Yahyi, and Shawia.

On the first day of the feast, when those in charge of the henna convene, a white flag is set up on the roof of each of the houses.

In the regions which have seven-day feasts at both houses, the last three days are subject to definite food regulation, but on the first four any suitable dish such as *seksu* and *guaz* [1] may be served. On the fifth day a *thamarik* of beans cooked with oil and cut-up peppers is served with bread, and no other food may be cooked or consumed in the two houses on that day. On the sixth day, early in the morning, more bean *thamarik* is eaten and then the men slaughter a goat, the meat of which they give the women to cook in the house of the groom. These same men, members of the groom's family, then lead another goat to the bride's house and do the same.

On the seventh day honey is given to the guests early in the morning, and then a hearty meat dish, usually a *guaz*. After this has been eaten the guests bring their presents, consisting of cattle, goats, meat, bread, butter, honey, and other foodstuffs. Bread alone is never presented.

Each morning during the seven-day period two companies of four *iuziren* each come to the groom's house and waken him by chanting, each four alternately, the following quatrain:

Sabḥain er-razîḳ
Sabḥain el-khalaiḳ
Sabḥain er-ruwâḳ
El ardh el-khalaiḳ.[2]

[1] See p. 59.

[2] The classical form of this would be:

Sabḥân er-râziḳ	Praise to the Provider (Giver of Bread)
Sabḥân el-khâliḳ	Praise to the Creator
Sabḥân er-ruwâḳ	Praise to the Tent (Canopy, Heavens)
El ardh el-khâliḳ	The Earth is the Creator.

The Arabic words are little changed from their classical form; they do not occur in the Koran, and I have been unable to trace their origin.

The idea seems to be that the sky fertilizes the earth, which produces life and food. Such a principle may be a survival of a pre-Islamic belief, with the formula translated into classical Arabic to give it greater ritualistic value; or it may be the last vestige of an obscure heresy, such as that of Hamim (El Bekri, pp. 197 *sqq.*). Discussion of this troublesome question is earnestly solicited.

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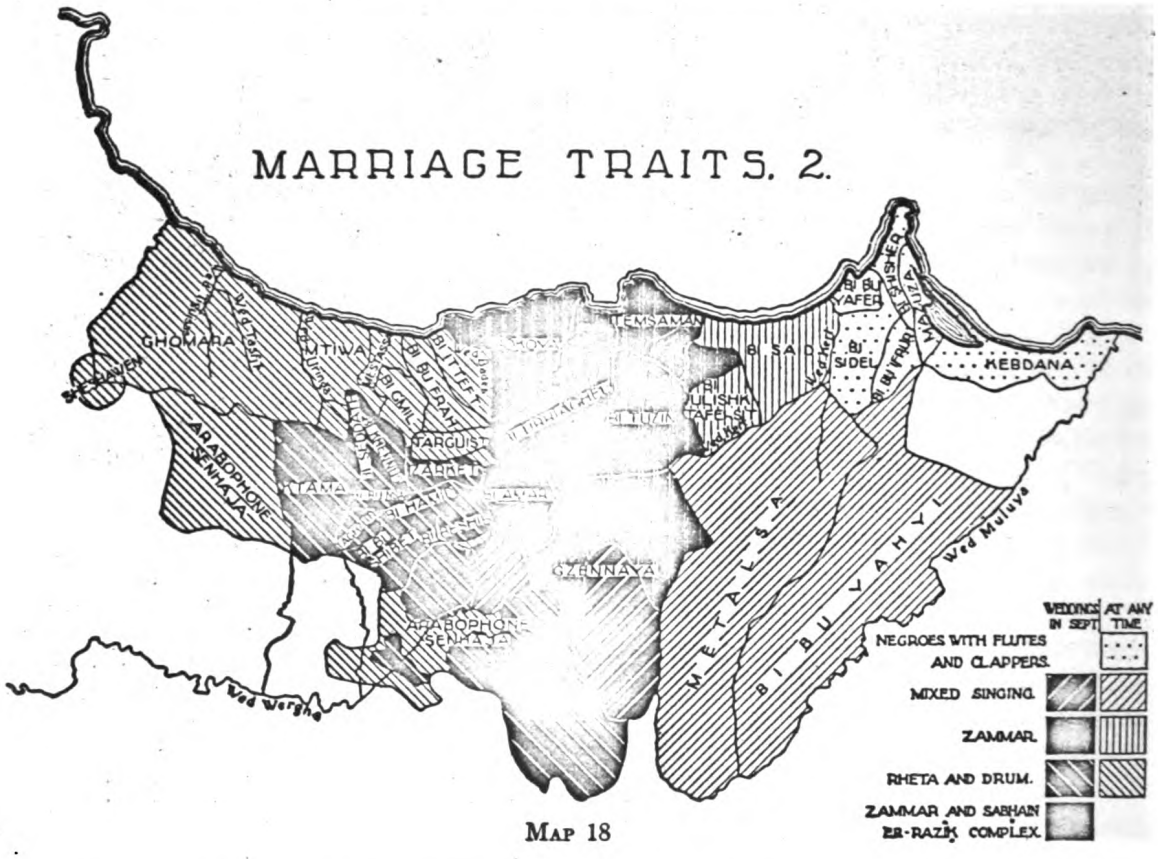
The *iuziren* whose turn it is, chant at the top of their lungs, since the other company usually amuses itself by firing off volleys of musketry. After both have chanted it a number of times, they unite in gunplay, and enter the house to greet the groom. The chanting of the *sabḥain er-razîḳ* as the verse is called, is considered a very necessary formality in the region in which it is observed. It is thought that to omit this part of the wedding would be more serious than any other miscarriage of custom. Those who do not practice it look upon it with great ridicule, and call it a survival of heathendom; consequently those who do



MAP 18

practice it take pains to lead strangers away while it is being done, and never mention it nor admit participation in it while travelling. It is another of the strange hypocrisies and inconsistencies of Riffian culture, resulting from their retention of ancient cultural traits. Chanting it is the custom among the mountain Beni Urriaghlis, in Beni Amart, Iherrushen, and Ikhuanen, and among some families of Iherrassen.

The chief attractions at the houses of the bride and groom, during all the seven or three nights in the regions where food is given nightly, are the dancing and singing of the girls, the gunplay and shouting of the men, the instrumental music, and the coarse humor of the musicians.

There are two types of dancing, the usual one and the type confined to the central area. In the usual type, all the young women of the *bone* who are presentable form two opposing and equal lines in the courtyard, each line with a leader. The women include not only

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unmarried ones but also the younger married women whose husbands will allow them to participate. The dancing is slow as far as actual progression and movement of the feet is concerned, since the two parallel lines, each girl with her hands on the shoulders of the one in front of her, move up and down the courtyard, and sometimes swing at angles to each other. A more rapid motion, however, takes place in the abdomen, hips, and shoulders, the dancers writhing in unison in a rapid muscle dance, stamping their feet in time with the music and moving them slowly back and forth.

While dancing the women sing rhymed couplets, usually in pentameter, to some monotonous and yet not unmusical refrain. The music is more appealing to an American ear than that of the Arabs, but less so than that of the Shluh. The couplets include amorous rhapsodies, extemporaneous personal allusions to boys in the audience whose attention one of the dancers, especially the leader of a line, may wish to attract, and endless narrative dirges and exultations dealing with the war with the Christians. These war poems are beautiful compositions, and have now been sung so often that they have acquired a certain stability of form. They are sung in the dialect of the Galiya; often during the singing men who have participated in the battles referred to burst out weeping.

In some of the songs a dialogue is carried out between the two lines, one representing the Riffians and the other the Spaniards. As an example, one line says (in rough paraphrasing) "O soldiers, why did you come here? Why did you pitch your white tents beneath the crags of sweet-smelling wood?" To this the other, representing the Spaniards, replies, "To see the girls of Temsaman walking by, girded with belts of many colors, and their skirts swishing."

The leaders of the lines sometimes carry shallow open-based drums, the heads of which they pause to tighten by a fire burning in an angle of the court.

In a restricted part of the central area a different and more active type of dancing is found: all but two of the girls, none of whom are married, dance around in a circle, facing inward and singing. The style of their dancing is the same as that of the usual type. The two leaders, however, dance apart from the others. They wear short skirts, and hold in their hands, instead of drums, wooden clickers or castanets.[1]

These two dance side by side, moving their hips in opposite directions, and from time to time kicking their legs high in the air, clicking their castanets beneath their raised thighs and striking them on their buttocks. When the spirit of the dance has sufficiently aroused them they pick up and swing each other and leap to each other's shoulders and stand for a moment upon them. The atmosphere of this dance, heightened by the presence of the castanets, is quite Andalusian, but more acrobatic. It is to be seen among the mountain Urriaghlis, and in Beni Amart, Iherrushen, and Ikhuanen. Since the war the Taghzuthis have taken over this type of dancing, or rather the circle part of it, since the skill required for the parts of the two leaders is beyond them.

There are several kinds of music played at Riffian weddings. The first is that of the *zammar*, a double-reed pipe with vibrator and opposing stops.[2] The ends of the pipes are adorned with aoudad horns. The music produced on this instrument sounds very much like

[1] Bates (pp. 155–156) says that castanets were used by the ancient Libyans. One representation which he exhibits shows two curved pieces, presumably of wood, held in one hand; another shows two sticks, one held in each hand, and struck together. The Riffian women hold a pair in each hand.

[2] Bates (*loc. cit.*) states on the authority of Durius Samius that the ancient Libyans played on double-reed pipes.

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that of bagpipes. The *zammar* is played by the pipers from Temsaman and other places outside the heart of the Rif. They wander into that region during the month of September to play at weddings.[1]

Besides being musicians, the pipers act as professional wits, specializing in double meanings, usually of an obscene nature. Remarks which would cause a fight if uttered by anyone else are received with great applause when uttered by a piper.

The places whence these players come have already been listed.[2] The range of their professional practice includes Beni Said, Beni Ulishk, Temsaman, Tafersit, Beni Tuzin, Beni Urriaghel, all Gzennaya excepting Shawia, Beni Amart, and Bokoya. Pipers inhabiting the territory of the Galiya play locally for weddings within their own families, as well as in the central Rif. Outside of our region, the Arabs of Msun, the Beni Znassen, the Braber, and the Algerian Kabyles employ *zammar* players, and in the last two instances bagpipers as well, to play at their weddings. The North African bagpipe, which is not found in the Rif, resembles the *zammar* in the construction of the two pipes, which are fingered.

The second type of music is that of the *rheta*, a flaring-mouthed straight clarinet which produces an extremely loud, piercing note. This music is accompanied by the beating of large drums, closed at the bottom; sometimes double-headed drums are used.[3] The Jebala is the home of this method of entertainment. The musicians are students from cantonal mosques or *zawias*. This means of livelihood does not place them in a low social category, as it does the pipers. The profession is optional, not hereditary. Jeballi students who wander about playing this instrument at weddings take small boys along to sing in a piping falsetto and dance. On other occasions they use the reed flute instead of the *rheta*, which is reserved for ceremonial occasions. This is the practice in all Senhaja except Marnissa, all Ghomara, the maritime tribes, and Targuist.

The third type, centered among the Nomads, consists of flute music and singing. All the guests, both men and women, except for the dancers, sit together within the brush enclosure surrounding the encampment, or, in the case of sedentary peoples, in the courtyard. They sing in mixed chorus to the accompaniment of a single flute played by one of the company. The musician is not distinguished from the others except in his musical ability. Distribution is in Beni Bu Yahyi, Metalsa, Shawia, Marnissa.

The fourth type is found in the Galiya and Kebdana. Negroes belonging to the Naṣiri sect, who play flutes, beat on large drums, and click iron clappers, wander into these tribes and are employed as entertainers in weddings. The Beni Bu Yahyi employ them when they can obtain their services, which is not often.

Besides these professional types of music, and the singing of the dancers, the part of the older women must not be omitted. They cluster in a corner of the court or in a room, and indulge in the shrill, pulsating cry known as the *zigharit*, famous in antiquity.[4]

The men sit on the ground, leaning against the walls, laugh, shout, emit piercing cries, and fire off their rifles, holding the butts against the ground so that the muzzles are level with their ears. This action naturally has the effect of temporarily deafening some of the guests.

[1] The social position of this group has already been discussed. See pp. 92 *seq.*

[2] See pp. 93–94.

[3] Bates (*loc. cit.*) shows a drawing of a similar instrument, played in antiquity, and also a double-headed Libyan drum.

[4] Bates, pp. 153–154.

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The culmination of the ceremony comes, in all regions, on the last night of the feast, when open hospitality is practiced everywhere. The guests, who, in the areas in which there is hospitality on the earlier nights have spent the preceding evenings wandering back and forth between the houses of the bride and groom, entertained alternately by the two groups of dancers and of musicians, concentrate on the final night at the house of the groom.

After it has grown dark the bride is dressed for her journey to her husband's house. Her best clothes are put on, including some which the groom has bought for her as a present. The rest of her clothes and personal possessions are tied together or put in a box to be taken with her. She is veiled, and mounted on a mule. In regions where there are no mules or the path between the houses is too steep for one, she is carried on the back of a strong woman. In no case is she allowed to walk.

Meanwhile, in the region in which the *sabḥain er-razîḳ* is chanted, the groom makes a final preparation. He goes out of the house to a place where reeds grow, cuts one, and brings it back to the house. With this he re-enters his room and stays there until the bride arrives, keeping the reed for a purpose which will be described later. In the same region, the bride's costume contains one distinctive feature. The *thiuziren* bring two pliant sticks to the house. These they tie together and bend into an arch, which they hold over her head so that the ends touch her temples. They then throw a piece of cloth over this frame, silk if obtainable, and bind a red and white turban around the temples so that it will hold the arch and cloth in place. They thrust a small mirror under the cloth and over the bride's forehead, and remove her belt, which she is not allowed to wear in the presence of her husband.

When the bride has been thus prepared she is mounted on the mule. In the *sabḥain er-razîḳ* area her brother, or her paternal uncle if she has no brother, mounts behind her and clasps her around the waist. Another relative leads the mule or walks beside it. The women of the family, in all regions, walk in a group about the mule. The men of the bride's family go with the procession, slightly ahead, and fire off their rifles all the way, bursting into especially rapid volleys as they near the courtyard of the groom's house. Before entering, the women of the bride's family hand her a tray full of barley, raisins, and almonds, which she scatters all about her as she enters. The guests rush out to pick these up, and eat the raisins, only the men eating the almonds. The barley is saved to be mixed with the next season's seed-grain, since it is thought that the fertility of the bride will cause an added increase in the crop.

The groom now emerges from his room and is handed a stick by one of the *iuziren*, who hands a similar one to the brother or uncle of the bride. These two hold a mock battle of short duration, after which the groom leads the bride into the room destined for her. In the *sabḥain er-razîḳ* area he comes out again immediately with the reed which he has previously cut. He hands it to one of the *iuziren*, who holds it while the groom makes three passes at it with his knife without touching it. Then the groom takes it again and cuts it in three pieces. Two of these he gives to guests, who subdivide them and distribute the small pieces. These are considered to be full of *baraka*, and are kept.

While the groom is cutting up the reed eight of the *iuziren* pair off into two equal groups and chant the *sabḥain er-razîḳ* for the last time. After they have finished the groom takes the third piece of the reed into the chamber with the bride, and hangs it on the wall. The bride and groom do not leave their room until the next day.

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Outside, the guests eat. In the old days in many places a friend of the groom provided a tub of *seksu*, so large and so full that it took four men to carry it, lifting it by chain handles on the sides, and ten men could sit around it eating at once. Another man would bring a spouted pot full of honey mixed with melted butter, which he would pour on the *seksu* as dry spots were uncovered. When a guest was through he made way for another, and when all were through they re-assembled and threw coins as a gift to the groom into what remained of the *seksu*. The usual amount for each to throw in was a dollar. Since the discontinuance of the practice of serving such large tubs of *seksu*, the money is thrown into smaller bowls of *seksu* and into brass trays. Sometimes enemies or rivals throw increasingly large sums into the *seksu* in order to shame and exceed each other until one has run out of funds, when the other gloats over his rival's discomfiture. When a man thus runs out of money he may throw in cartridges, knives, or any other negotiable object. One famous instance is related wherein a man led his mule into the room and backed it into the tub, after he had thrown in everything else he possessed but his clothes.

Defloration of the bride does not necessarily take place on this night, since the couple is often extremely shy, especially if both are very young. If coitus takes place on the final night of the wedding, a portion of the bride's clothing or a cloth specially intended for the purpose is passed through the door and around among the guests, as proof of the bride's virginity. If the defloration takes place on a later occasion, the family of the groom holds a rapidly assembled celebration, called the *shahad er ḥreir*, to celebrate the event. If the bride is not a virgin the groom may send her home and get his money back, or may keep her and get back a portion of his money. In case he is fond of her he may do nothing about it, postponing the official defloration until some time when he can falsify the tokens of virginity. Such indulgence usually happens only when it is the groom who has deflowered her before marriage. If he keeps her without making any such exhibition, real or false, no action is taken by the community, but the couple starts its married life with an unsavory reputation. Fear of incurring the wrath of the bride's family sometimes prevents the groom from sending back a hymenless bride, much as he may wish to do so.

There is a tradition in the Rif that the *jus primae noctis* was formerly practiced in certain tribes of the Werghan Senhaja: a certain man from el Kelaa of Beni Ulid was sent for to attend weddings in Beni Wenjin, Marnissa, Fenassa, Ulad Azam, Beni Koraa, Bu Adl, Zrarka, and Beni Krama, where he was feasted during all the days of the ceremony, and on the night of the bride's arrival deflowered and then left her. The man is said to be dead and the custom discontinued. The Riffians tell the story as a joke on the Senhajans, and although this circumstance does not necessarily render the tale false it does not increase its chances of being true.

The marriage of a divorced woman is everywhere carried out with less ceremony than that of a girl who is being married for the first time. In the area in which the *sabḥain erraẓîḳ* is chanted, the brother of a divorced woman does not mount on the mule behind her. The same is true of the marriage of a widow.

Residence of the couple after marriage may be matrilocal, patrilocal, in the house of a brother of the groom, or, when possible, in a separate house. Matrilocal residence occurs when the groom is a newcomer to the *bone* and serves the bride's father, as a share-laborer; residence in the house of the groom's father or brother takes place when the groom is not wealthy enough to build a new house or buy an unoccupied one; residence in the house of

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the brother instead of that of the father depends on whether or not the father is living, and whether or not the brother has paid for the wedding, for the bride, or for both.

In the case of the levirate, which has been discussed under inheritance, the newly-married widow usually remains with her children in the house of her first husband, to which the new husband comes as a visitor rather than as a regular occupant. All wives who have been married in any way other than through the levirate usually live in the same house together.

Not only is the levirate a common feature of Riffian society, but the sororate is also practiced. A man whose wife dies young is expected to marry one of her sisters in her place, and no fee is demanded for the second one. A man cannot, however, marry his wife's sister during the lifetime of the first one.

Polygyny in the Rif is more often the result of the function of the levirate than the wholly voluntary marriage of more than one wife. Only men of unusual wealth ordinarily marry more than one wife from choice. Women given a man of a different *bone* by means of a magical compulsion, the purpose of which is the alliance of the two *bones*, form an additional class of plural wives.

Such is the social economy of the Riffians that spinsters are practically non-existent.

DIVORCE

If a husband and his wife both desire a divorce, the clerk gives her a paper making her free to remarry and she goes back to the house of her parents.

If the wife desires a divorce and the husband does not, the wife may go to the house of her parents to live. If she remains there more than fifteen days without returning to her husband's house she is automatically divorced and is entitled to a paper to that effect from the clerk. This procedure is not as easy as it sounds, however, since the woman's parents may object to the divorce and send her back again by force.

The husband may send envoys, usually his father and brothers, to the house of his wife's parents to slaughter a goat and prepare a meal there, which action serves as a magical compulsion upon the owner of the house to accede to their wishes. The ultimate decision as to whether or not the wife remains all of the fifteen days depends upon the attitude of her parents, the strength of her husband's desire to get her back, and the relative importance of the two *veins* involved. If the wife is from a different *bone* from that of the husband serious hostilities may result.

A husband seldom divorces a wife against her will except for infidelity, but he may divorce her for lesser offenses if he desires or dares. He may if he wishes divorce her for failure to bear him children, though in this case he usually marries a second wife and keeps the first one as well.

A woman who wishes to be divorced and cannot, on account of the opposition of her family and of her husband, may run away from the tribe with her lover, if she has one; or alone, if she has not and is sufficiently courageous. Women who have run away on account of unfortunate marriages or as a consequence of being caught in adultery sometimes go to Fez and become prostitutes. So much trouble can be caused a man by a wife whom he has married against her will that few men are willing to undertake the liability of doing so.

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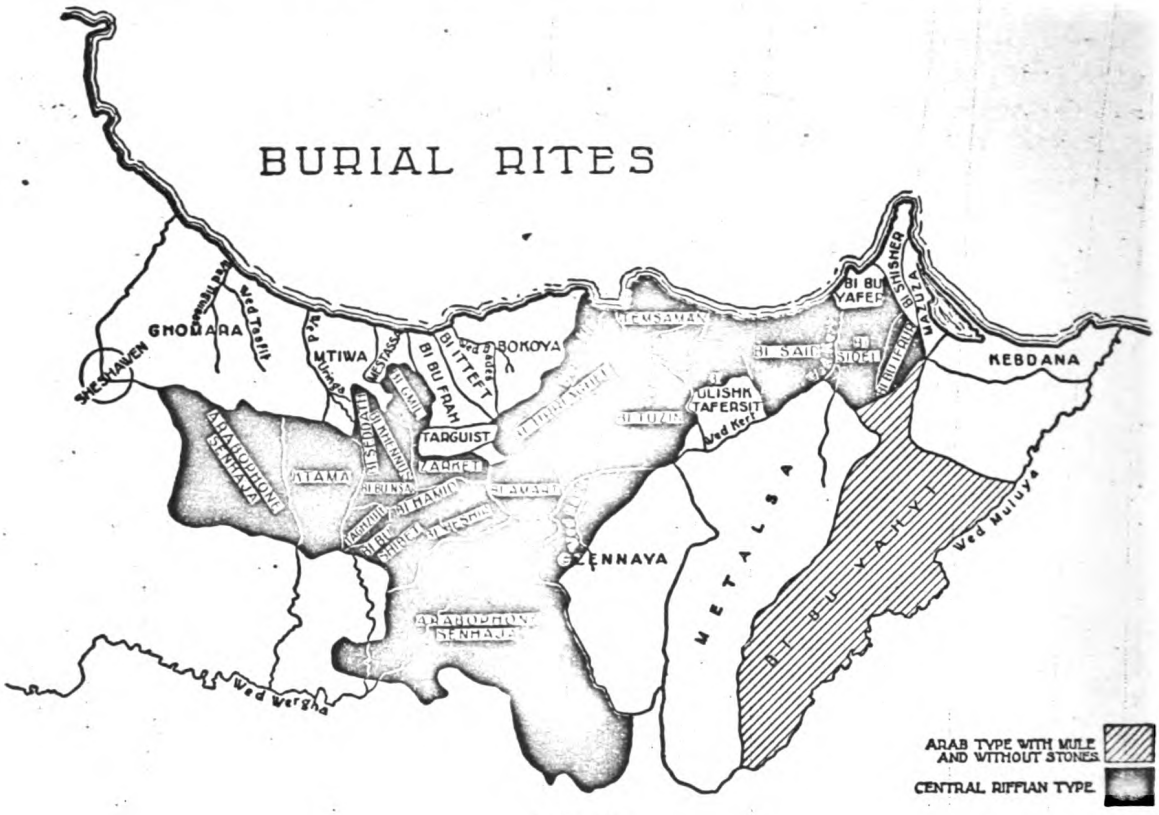
DEATH AND BURIAL

When a man or a woman has died, the first consideration is to have the corpse washed. In the case of a man, this is done by an old man whose person and clothes are clean, or by a student from the cantonal mosque. Two or three students stand by to assist him in bringing water and throwing it on the corpse. In the case of a woman it is an old woman who does the washing with other women helping. The corpse is first washed in hot water, then cold water is thrown on. The washing is done with a woolen cloth, which is afterward



MAP 19

thrown away, along with the pot which held the water for washing. After this the corpse is wrapped in a sheet, formerly wool and now cotton.

If the victim dies early enough so that his burial may be effected by *el asr*, or four o'clock in the afternoon, he is buried on the day of his decease; if he dies too late his corpse must be kept in the house all night in its shroud. The corpse must not be left in the dark, so a light is left burning with it.

Students are summoned, as many as the family can afford, to sit in the room with the corpse and chant most of the night. They must chant sixty *ḥaiseb*, or four times sixty chapters of the Koran, since a *ḥaiseb* is four chapters; they thus chant the whole book. Each one is assigned a different part to chant, so that they may cover the ground the more quickly. If the family be poor and only a few students have been summoned, they may not

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get through the whole Koran in time. The family supplies them with food which they eat when tired of chanting.

When the corpse is ready for burial, be it on the day of decease or the next day, the whole village comes out to attend the procession and funeral. The women are represented only by the older married women.

The corpse, resting on the door of the village mosque, is carried by four men, constantly changing, so that everyone in the village may be said to have borne it part of the way. Each man runs up and takes a corner of the door for a few feet, when he is replaced by another. In this way the corpse is carried to the cemetery. If, as often happens, the mosque door comes apart on the way (for it is but loosely tied together), the corpse must be set on the ground while the door is being repaired. In each place where the corpse is thus laid a stone must be set up.

Arrived at the place of burial, some of the men busy themselves with digging the grave. It consists of two holes, one inside the other. The upper hole must be twelve foot-measures long, a leg-straddle wide, and navel deep. The inner hole must be one span wide, the length of the corpse, measured with a rope, and knee deep. The corpse is put in the inner hole on its left side, its feet to the east. If the corpse is too thick to fit into the span-wide hole, it must be forced into it, since it is considered very bad for a corpse to be given a wider grave. When necessary, however, the ditch is widened, but at the expense of the soul of the deceased. Seven flat slabs of slate or other sedimentary stone are brought, having been shaped when necessary. They are laid over the inner grave crosswise, and dirt is piled in above them and the outer grave filled. While the corpse is resting on the bank, just before being set into the grave, the students chant the burial ritual from the Koran. As soon as the body is in the grave the women go away, and the men collect together in a circle and pray.

The pre-Islamic graves in the cemetery at Beni Hozmar, on the road between Sheshawen and Tetuan, can be distinguished from the later ones in the same cemetery by the fact that the former are orientated north and south. The graves at Aswil, on the border between the Gzennaya and Beni Urriaghel, are similarly orientated. These graves are said to be pre-Islamic. I witnessed a funeral at Taghzuth, at which the grave was dug north and south, and the corpse buried with its head to the south. Three Riffians who were with me objected to this orientation, but their objection was not heeded. The men taking part in the interment argued that the direction was east and west, obviously an evasion, since at that moment the sun was about to set directly at right angles to the axis of the grave. Since this burial took place during the week of the summer solstice, the orientation must have been almost due north and south. On account of the sensitiveness of the Taghzuthis on this point I was unable to obtain any but visual information concerning the persistence of this custom.

A flat stone, usually artifically shaped, is erected at head and feet; in the case of a man the stones are parallel to each other, and at right angles to the axis of the body; in the case of a woman, the headstone is set in the axis line and at right angles to the footstone.

The type of burial described above is typical of the central regions of the Rif. In the east, and among the maritime tribes, the custom in use is that employed in the Arabized section of Morocco in general. The body is buried at any time desired, no hesitation being felt at burying it in the night, or at leaving it alone and in the dark. It is carried to the grave on a rug by four paid pall-bearers, accompanied by two paid grave-diggers carrying hoes. The immediate family may attend the burial, but the village as a whole does not.

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There are no students and no food is served in the house of the deceased afterwards, as is the case in the central Rif. According to the second method the grave is not measured by the navel, straddle, span, knee, and rope, but by rope alone. The first hole is estimated and the second is measured with a rope to fit the corpse. No compunction is felt at making the hole too large or small. The stones put at head and feet are round and the same for men and women. The body is not set down en route, since it is carried on a rug, hence there is no occasion for planting stones along the way. Under this system there is no prayer at the grave.

A third usage is that of the Beni Bu Yahyi, who carry their dead to the burial place on the back of a donkey, and bury it in a shallow hole with the surrounding dirt scraped over it into a mound. No stones are used, probably because stones are very rare in that country. The central Riffian type is found in Beni Bu Ifrur; Beni Sidel; Beni Said; that portion of Beni Ulishk lying near Temsaman; all of Beni Tuzin except the village of el Azib of Meidhar; Beni Urriaghel; Temsaman; Iherrushen, Ikhuanen, Ulad Al Fars, Ulad Alu ben Aissa, Iherrassen, Ikaroen, Ihershliyen, Temjunt, Bured, Inhanahan, Beni Yunes, and Beni Mohammed of Gzennaya; Beni Amart; and all the Senhaja and Ghomara.

The second type is found in Kebdana; Mazuza, Ait Shisher, Beni Bu Yafer; Metalsa; that part of Beni Ulishk near Dar Driush; el Azib of Meidhar of Beni Tuzin; Tafersit; Shawia, Imsdurar, and Khebaba of Gzennaya; Beni Mesduy; Targuist; Bokoya; Beni Itteft; Beni Bu Frah; Mestassa; and Mtiwa.

The type in which the corpse is carried on a mule is practiced among the Riffians only by the Beni Bu Yahyi; the nearby Arabs of the Ulad Bu Rima, however, use that method.

Although all the factors connected with death and burial which have been described seem to fit together as opposing complexes without overlapping, there is one other trait which has a different distribution. All of the men in the *bone* must sleep in the house for seven days after the death. Any stranger who is in the house at the actual time of the death must sleep there with them. During the seven days, members of neighboring *bones* which are well disposed towards that of the deceased must visit the house to express their condolences to the family.

The women express their grief by weeping and sometimes by scratching their faces and disarranging their hair, but do not put on any costume which marks them as widows. Among the Beni Amart the widows frequently entertain visitors with long recitations of the virtues of their husbands.

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CHAPTER XII

RELIGION

RIFFIAN religion, although of course officially Islam, is a blend of that faith with old heathen ideas, and with factors apparently Christian and Jewish, some of which may antedate the arrival of Islam. The kings of Nekor were rigid adherents to the Malekite rite,[1] and the Islam of the Riffians from that time to this has been officially orthodox.

The visible practice of orthodox religion consists in the sending by each *bone* of twenty-five men on a set day each week to the cantonal mosque to pray, and in public attendance of Friday sermons there. The preceptor delivers this sermon in the morning, standing before the worshippers and leaning on a cane. He criticizes local happenings and gives out the agricultural forecast for the week, besides expounding the Ḳoran.

Most of the men of the *canton* who are married and of serious purpose attend this service. Old women also attend, sitting in a separate room, where they can hear but cannot be seen. Young women do not go, and indeed seldom take the trouble to pray, since religion is almost wholly a masculine concern. When they do pray they do it at home. As an outlet of religious energy, or more often as a holiday excursion, they take food to the saint's tomb and eat it there with their children. Students, apparently immune to the prohibition against men's going to the tomb, do so and are given food by the women. Women also go to cemeteries on Fridays, and enjoy themselves despite their surroundings.

A common legend prevalent in many parts of Morocco is that after the Christians have had their way with the Muslimin for a certain length of time, Sidna Ali will come and smite them with the sword. After this Sidna Aissa, or Jesus, will appear and convert the Christians to Islam.

This legend is narrated in the Jebala, where a special intensity is given to the part of Jesus in the drama. The Jebalans claim that when Sidna Aissa comes wolves will lie down with lambs, and that stones, streams, and roads will speak. Ali, who is said by the Jebalans to have been scab-headed, and Jesus, who is probably their most important religious personage, especially in Taghzuth, are the only two historical characters reputed not to have died, but to be living on, awaiting return to earth. This is not said of the Prophet, whose personality hovers in the background as the legitimate but unemphasized pivot of the religion.

At Taghzuth I was told the stories of Jonah and the whale, and the Flood. In the latter legend, the ark was made to land at Tangier. This belief is also held in the Rif. A variant version popular there is that in the beginning of time Banu Adam (a collective name meaning "Children of Adam," or "mankind," but here used to denote an individual) saw that a flood was coming and built a boat, taking into it his wife, his daughter, his dog, his cat, his donkey, and seven men. When the flood was over the boat landed on a mountain. At that time the seven men began quarrelling over Banu Adam's daughter, since each of them

[1] See p. 32.

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wanted her, and the quarrel grew into a fight. Banu Adam was perturbed at this, and sat up all night making *fatḥa* and other prayers. In the morning he found that instead of one daughter he had seven, each like the next, so that he could not tell which of them was the original. He also discovered that his dog, cat, and donkey were missing, hence he naturally concluded that each of these animals had been turned into two daughters. Each man married one of the daughters, and all mankind is descended from these unions.

All women since that time have been divided into four classes: (1) those who are always fighting and making a noise, and interfering in other people's affairs—descended from the dog; (2) those sly, deceitful, and unfaithful—descended from the cat; (3) the stupid, stolid, and slow—descended from the donkey; (4) the quiet, capable, agreeable, truthful, and faithful. These last are descended from the true daughter of Banu Adam, and are rare.

In the Rif, the Ali and Jesus prediction is replaced by the legend that a man, identity unknown, will come and smite both the Muslimin and the Christians until but a tenth of each remains. Then the slayer will introduce a new religion, the nature of which has not yet been revealed. He will come across the sky with the sun from the East in a single day.

RELIGIOUS BROTHERHOODS

Just before the European conquest of the Rif, members of heterodox religious brotherhoods began to come into the territory, teaching and making converts, and Riffians who had lived outside came home bringing these doctrines with them. These sects are the Bokhariin, Derkawa, Tijaniin, and Nasiriin. All four of them now have adherents all over the Rif. The adherents are called *fakir* (plural *fokara*). The *fokara* refuse to go to the mosques or saint's tombs, but will convene for religious purposes only in the house of their local *mokaddem*. Here they pray and work themselves into religious ecstasies by monotonous chants and gruntings, accompanied by rhythmic movements of the body. In these meetings they pretend to see, or believe they see, the Prophet or the founder of their order going by in the form of a cat, a dove, or some other animal, and delivering a message on the way. They are ardent bead-tellers, and delight in expounding distinctions between the *ḥarram* and the *ḥallal*, or the forbidden unclean and the lawful. They are held in low local repute.

There are neither Aissawa [1] nor Hamadcha [2] in the Rif, and no local Hedawa.[3] The only Hedawa in the Rif are devotees, infrequently to be seen begging their way. They are distrusted, and are not encouraged to remain.

[1] The Aissawa are devotees of Sidi Mohammed ben Aissa, whose remains lie outside the walls at Meknes. They follow an extravagant cult the practices of which have often been described by Europeans. Accounts may be found in René Brunel's *Essai sur la Confrèrie Religieuse des Aissaoua au Maroc*, and *Les Confrèries Religieuses Mussulmanes*, by Octave Depont and Xavier Coppolani.

[2] The Hamadcha are a sub-sect of the Aissawa. They are commonly known as the "head-choppers," on account of their practice of slashing their own heads with axes, and banging them with clubs, at their annual celebrations. References to them will be found in the two works listed above.

[3] The Hedawa are the followers of Sidi Heddi, a deceased saint of the Jebala. At his tomb there are said to be two horses which plough the fields belonging to the sanctuary, without guidance. The Hedawa do not wash or shave, and go around in rags or sometimes naked. They smoke large pipes of *kif*, and are almost continually under the influence of that drug. They claim that they can foretell the future while under its influence. They can be seen in greatest numbers at Mulai Yakub, a sulphur bath northwest of Fez, accessible by motor.

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SAINTS

Imrabten, or saints, live in some of the tribes and receive local veneration. A saint is a man who possesses *baraka*, a form of magical emanation comparable to *mana*, and usually derived through descent from the Prophet. It is through its possession that he is enabled to perform supernatural acts, and his person, being charged with it, may heal persons who touch him; hence anything which he has touched has partaken of the *baraka* and is a valuable object. By exploiting the belief in these superstitions the saints make their living.

Shorfa, or alleged descendants of the Prophet, have a virtual monopoly of this business, although holy men with no claims to such descent may acquire *baraka* through their manner of living or through religious insanity. In such cases pedigrees are often doctored up for them later.

A sherif or other possessor of *baraka* may lose it through participation in warfare, breaking of religious tabus, friendly traffic with Christians, or simply ceasing to exercise it. Shorfa recently established in the Rif for the most part still possess and exploit their *baraka*, whereas those of long residence have usually lost it and become like the rest of the Riffians. In a family of shorfa one brother may choose to exploit this quality and the other brothers to live as ordinary people.

The foremost shorfa of the Rif are the family of Ikhemrijen, originally from Fez, who are established at Targuist, at Snada of the Beni Bu Frah, in the Beni Bu Shibet, and at Tizi Ifri, between Beni Amart and Beni Beshir. The headquarters of the family are at Targuist, at the Zawiat et Tifah, where Sidi Mohammed n Suddik is the present incumbent. Sidi Hamidu at Snada and the incumbent at Tizi Ifri are likewise said to possess *baraka*, but are not as popular as their relative. The incumbent in the Beni Bu Shibet has in some way lost his *baraka*. When I was at Targuist in 1926 I was told that Sidi Mohammed had lost his *baraka* through eating with the Spanish officers and carrying on friendly relations with them, but when I was there again in 1928 I received no further confirmation of this.

At each of the establishments of this family is a *zawia*, or school, a place of instruction comparable to a cantonal mosque with the presiding sherif as head of it.

In Beni Said there is a living saint named Sidi Mohammed who came from outside the Rif, and who has established a large *zawia*. He is an emissary of the Nasirriin, and *fokara* of this sect come once every three months from all over the Rif to pay him tribute.

In Beni Yunes of the Gzennaya dwells a delegate of the Derkawa, named Sidi Mohammed el Khok. He is a recent arrival, and has a document from the head of the sect in Fez authorizing him to establish a sanctuary in the Rif, to which Riffian Derkawa may repair so as to avoid the long journey to Fez.

Besides these active and first generation saints, there are many families descended from others long dead. Some of them do not fight and are immune from attack, and others fight and are attacked. The former are thought to possess *baraka* in a very dilute form; such is the case with the descendants of Sidi Bu Jiddain, a Zenatan, in the Beni Tuzin. Sidi Bu Jiddain owned a mule with which he conversed. Once he went to Fez, where the sultan ordered him sent to jail, at which the mule cried: "That sultan is crazy." The sultan was so frightened that he ordered Sidi Bu Jiddain out of the city. Today his descendants run a *zawia* at his tomb and live on public credulity and charity.

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All of the Ulad Alu ben Aissa of the Gzennaya claim descent from Sidi Hend u Musa, a local saint in the wall of whose tomb an old sword is stuck. It is said that when this sword is drawn the Muslimin will defeat the Christians and drive them from the land. Men have tried for years to pull it out, but no one has yet been successful. There is a *zawia* to this same saint in Beni Said; he is said to have written books foretelling the recent invasion of the Rif by the Christians, predicting that the last place to submit would be his tomb, and that while the defenders were holding out they would lack salt, and that men would kill each other for it. The Gzennaya claim that this prophecy was fulfilled. His descendants fight, even with each other, and are thought to have lost their *baraka*. A few individuals, however, such as the present Sidi Amar, have a recurrence of it. Sidi Amar is an insane man of the Ulad Alu ben Aissa who when a boy worked as share-laborer in the Beni Amart. One cold morning his mistress told him to go to the spring to fetch water, and Sidi Amar cursed the spring, expressing the wish that it should dry up. The spring did dry up, or is said to have done so, and Sidi Amar has been feared and respected ever since. His chief pleasure is going to market, where he chases women with a stick, being a confirmed misogynist. Sidi Amar went on a pilgrimage to Mekka, and when he got home claimed that he had flown through the air on the way back, and that his return journey had taken him but two days. He was laughed at until two later pilgrims came home with the story that they had checked the date of his departure from Mekka and found it to have been just two days before his arrival. After this everyone believed it, and his reputation increased. Sidi Amar, humorously called the Kaid Amar, at present has no fixed abode, but enters any house he wishes and is given food and shelter. When a man has been wounded Sidi Amar comes in and sits by him, refusing to eat until the patient is out of danger. He is reputed to have effected many cures in this way. When Sidi Amar dies, he will probably have a tomb erected on his grave, to which people will come for its *baraka*, for he has established a sufficiently miraculous reputation already to assure this.

In Iherrassen are the descendants of Sidi Hamid, saints without *baraka*. Their ancestor, a great wizard, used to write charms and then burn them, after which everyone present could see on the wall a moving picture of men walking by with guns, dogs, and mules.

In the Beni Amart live the descendants of Sidi Abd el Kadher Agenau, related to the saints of Beni Urriaghel. Those in Beni Amart have lost their *baraka* and fight continually.

The so-called *Imrabten* of Beni Urriaghel, who have taken the generic word for saints as their patronym, fight and yet preserve a portion of their *baraka*; anyone attacking them is liable to a severe spell of sickness. Their ancestor, Sidi Hamid el Kroni, grew horns on his head with which to fight, so the bellicose quality of these saints started with the first generation.

The Ulad Sidi el Hajj Misaud, saints of Taurirt in Beni Urriaghel, do not fight, yet their *baraka* seems to have "turned sour"; they are considered dangerous, and are not admitted as guests by other *bones*. Parents will not let their children look at them. There are estimated to be twelve hundred saints in Beni Urriaghel.

Sidi Shaib u el Ftah, whose tomb is at the harbor of Temsaman, has left descendants who teach music and dancing in the *zawia*. Men who would like to learn to play the flute or *zammar*, and women who wish to improve their dancing, stay there seven days and are supposed to learn what they came for in that space of time, partly through the instructors and

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partly through the *baraka* of the saint. The saints who teach music here are of a higher class than the itinerant musicians whom they instruct.

Among the saints of the Eastern Arabophone Senhaja are those at Khunduktamda, descended from Sidi Abdullah el Kholani, from whom some of the Ikhuanen of the Gzennaya also claim descent. The latter send ambassadors once a year to build a fire in his tomb. At Aghbalu are saints who are students, but who fight and have no *baraka*. At Sidi Ali ben Daud in Marnissa and at Sidi Mehend u Ghulbuzur are similar saints. The students of Amshesh, who have no *baraka*, are yet classed as saints and refuse to fight.

Former saints who have died without leaving descendants are remembered by tombs, usually kept by wardens living on the produce of the tomb property. Other tombs have been deserted and allowed to fall into ruins. Sometimes a pile of stones, an ordinary grave, or merely a tradition, establishes the burial-place of a saint. Tombs are often located near a great rock, a spring, a grove, or at some other place of distinctive natural appearance, such as a cave, and this indicates that the hagiolatry of the Rif, like that of other Mediterranean countries and regions, is a survival of an older nature worship. Such places are credited with special magical powers attributed to the lingering *baraka* of the saint.

The tomb of Sidi Mohammed near Bured in the Gzennaya will serve as an example. This is located in a dense clump of bushes reputed to be full of wild animals, and the home of a venerable lion. Sidi Mohammed had a lion which served him, and followed him whenever he called him. While at Fez, Sidi Mohammed heard that a lion owned by the Sultan had fought and defeated all animals put in a ring with it, and boasted publicly that his lion could vanquish that of the Sultan. For this he was put in jail. While there he sent his servant to the Rif to get his lion, which would come if the words *a seba dh' amendud* were said before the clump of bushes. The servant recited this formula and led the lion to Fez, where it defeated all the others there. The Sultan then released Sidi Mohammed with a present, and the saint returned to the Rif with the lion. After he died his tomb was built in the clump of bushes, and no one has dared to enter the bushes for many years. The warden of the tomb does not enter, but farms the land around it.

At Sidi Merj in Bokoya is a *zawia* near a swampy pond full of lush vegetation. Students staying in the *zawia* declare that they have seen cats and dogs go in and out of the water at night, and that these animals are *jnun*. No one goes any nearer the pond than necessary.

The cantonal mosque of Iherrushen in Gzennaya is accredited with the power to cause pregnancy, through the *baraka* of Sidi Misaud, who is buried there. Women come from other tribes to sleep in the mosque, since the *baraka* works during the night.

There are hundreds of these places scattered throughout the Rif and all Morocco. Although most Riffians believe in their efficacious powers, some do not, and there are many who do not believe in the powers of the Ikhemrijen shorfa and other imported saints. The people living east of Targuist do not credit them, while the Senhaja to the west of them do.

CELEBRATIONS

Celebrations of a religious character fall into two divisions, according to whether they are dated by the solar or lunar calendar. The former are considered by the Riffians to have nothing to do with Islam, but in accordance with the general hypocrisy of the people,

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who wish to retain their own practices while enjoying the benefits of Islam, they are rigorously observed.

Two such non-Islamic feasts are the *ḥagus* and the *'anṣara*.

The *ḥagus* falls on the 31st of December, according to the old-style calendar to which they adhere.[1] Married men take their wives and children to the homes of their wives' parents, where they remain seven days if they have no children, and three if they have them. They take with them meat, either fresh or cooked, nuts, honey, and other food. They never include animals for slaughter. In the central Riffian area the men bring sausages prepared for the occasion.[2] During this feast they wander among the houses of friends bringing presents of food.

A branch of fir or cedar is hung up over each door, and more branches and almond flowers are tied to the rafters. This is a time of feasting and merriment, with little or nothing to indicate the usual religious attitude. At night a dramatic presentation is given, similar to that of the *Aid el Kebir*.[3]

Westermarck associates the *ḥagus* with the celebration of the New Year.[4] He finds that in other parts of Morocco it is observed a day later, on the first of January.[4] The tribes celebrating the *ḥagus* are the Mountain Urriaghel, Beni Amart, Ulad Alu ben Aissa, Ikhuanen, Iherrushen, Temjunt, Ikaroen, Beni Tuzin, and all Senhaja. According to Westermarck the *ḥagus* is found throughout the Jebala,[5] hence its distribution in the Rif seems to tie up with the country to the west.

The *'anṣara* comes on the 24th of June, old style.[6] On this day the Riffians cut a twig from every kind of tree they can find, both wild and cultivated. They also cut stalks and leaves of all plants and herbs with which they are acquainted. Bringing these together they make piles of them, and after the sun has set, light the piles and jump over them through the smoke, which is plentiful on account of the green wood. Everyone jumps twice — men, women, and children, mothers holding their babies in their arms while leaping. When all have jumped the men go to the nearest stream and wash thoroughly every part of their bodies. The women and children go into the houses and do the same with bowls of water. This is called *siarth thudeshth*, or the washing-out of the "Jewishness," or "Jewess."[7] The explanation of the ceremony is that the fires are lit in honor of a Jewish prophet of old, and that all traces of "Jewishness" must then be removed.[8]

This practice is found everywhere in the Rif except among the Nomads and Maritime tribes, and throughout the Jebala to the Atlantic; the only place where I have witnessed it

[1] In this I am relying upon Westermarck, since my own data concerning the date are inexact. See Westermarck, pp. 161–162.

[2] See p. 60. [3] See pp. 152 *seq.* [4] Westermarck, pp. 160–161.

[5] For a detailed description of this ceremony and a discussion of its significance, see Westermarck, pp. 160–174.

[6] Again I am relying on Westermarck (p. 182).

[7] Westermarck (p. 189) says that they wash out the "Jewesses," but does not give the Berber equivalent. *Thudesẖth* might be translated "Jewess" as well as "Jewishness."

[8] While I was travelling through the Atlas in 1926, two Riffians attached to the expedition attended services at a synagogue in the *mellah* of Zerekten, in order to satisfy their curiosity and also to obtain some of the strong drink being served as part of the ceremony. After returning from the synagogue they expressed strong remorse for their action, and declared that it would take forty days for the "Jewishness" they had contracted to wear off. Each day for forty days they calculated how many more days they had to go, and when the fortieth day had passed expressed great delight. They said that should they die before the expiration of that period, they would be buried as Jews and considered as Jews on Judgment Day.

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is at Tangier. Westermarck plots a wide distribution for the custom,[1] and shows that it is a survival of a midsummer rite.[2]

The religious feasts of Mohammedan origin celebrated in the Rif are *el Ashor*, *el Mulud*, the month of *Ramadan*, the *Aid es Sghir* at the end of this month, and the *Aid el Kebir*.

The *Ashor* serves chiefly as a vacation for the school children, and is not otherwise important. Many do not even know when it is in force.

On the *Mulud* the women of the *bone* cook coarsely ground barley into a mush and carry it to the mosque, early in the morning, where all the children of the *bone* eat it together. In the evening the men buy a bull or cow by subscription and sacrifice it in front of the mosque so that blood will spurt on the door, then cut it up by the door and divide it, each man taking his share home to eat.

Ramadan is kept strictly by the Riffians, who do not deviate from the orthodox regulations in any way. Those who ordinarily eat pork, smoke, or drink, abstain from these practices during *Ramadan*, and scour with ashes any cooking or eating vessel which has been used for unclean food at other times. On the twenty-seventh night of this fast they believe that the sky opens and that a man who gazes fixedly at it may see God. If he does he dies instantly and is carried to heaven. On the last night, which is the *Aid es Sghir*, everyone washes well and dresses in clean clothing. The father measures out with his hands three double handfuls of barley for each person in the house. He then sends for a poor woman to come and take it, before which no one in the house may eat.

On each day of the *Aid el Kebir*, which lasts three days, each household kills a sheep and eats it. The men and women go about from house to house in the *bone*, the men dividing into age groups, and the women all banding together. The unmarried boys form two groups, the very young and the adolescent, and play games, wrestle, and play at government. They imitate the councils, also Arab forms of government, appointing a *ḳaid*, a *pasha*,[3] and *mokhazniya*.[4] The boys hold mock trials and send each other to jail. The young married men form a third group, the chief diversion of which is the exchange of obscene stories. The last group consists of the middle-aged and old men, who amuse themselves by reminiscing and narrating legends.

Each night comes the dramatic presentation by the *ishuikhen*, unmarried men who dress themselves up to represent certain characters and act out parts. The dramas are always comic and inevitably obscene. Staid persons who at any other time would be shocked at the sight or description of any obscene or sacrilegious act cast aside their repressions and enter heartily into the fun.

The scenes and situations enacted differ from tribe to tribe and at times change, but the general type and technique are always the same. A description of the carnival presented in parts of Gzennaya, Beni Urriaghel, and Beni Tuzin, follows. Descriptions of others may be found in Moulieras [5] and Westermarck.[6]

[1] Pages 182, 203–204.

[2] Pages 199–206. Westermarck eliminates the strong association with the idea of Jews by calling it *ex post facto*, and by bringing in parallels from other regions. For the present purpose, whether the Jewish factor be original or superimposed, as Westermarck has well demonstrated, in either case it indicates a degree of Jewish influence at some period of time.

[3] This Turkish title is applied in Morocco to mayors of cities.

[4] Guards, gendarmes, or retainers.

[5] Vol. I, pp. 106–111.

[6] Vol. II, pp. 133–158.

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There are eight rôles enacted by the *ishuikhen*; the Christians, the Christian women, the Jews, the Jewish women, the animals, their drivers, the Muslimin, and their wives. Those representing Christians imitate Christian clothing as best they can with cloth tied, not sewed together. They stick on moustaches of goats' hair, and put on leggings of grass matting. They carve great hats with broad brims out of yucca blades, make bandoliers from split strands of it, and attach small mirrors to their breasts in imitation of medals.

The "Christian women" imitate luxuriant hair with the woolen braids used by Riffian women. On top of their heads they attach white cloths with feathers sticking out of them. A yucca-cord belt is tied around the waist so tightly that it can be drawn in no farther, and onions or pomegranates are thrust under the shirt to look like breasts.

The "Jews" wear long beards of wool stuck on with a mixture of flour and eggs. They drape long white or black cloths around their bodies and tie red or black kerchiefs on the backs of their heads.

Those representing Jewish women wear long black cloths reaching to the ground.

The "animals," — lions, jackals, donkeys, cows, calves, and dogs — wear tails to which have been tied feathers and tufts of goat hair. The "donkey" wears over his face a donkey skull so cut as to allow his face partly to enter it. The "dog" has a long muzzle made of cork, wood, or cloth, and often has a jackal skin tied on his back. The "lions" disguise their faces only by smearing them with black and red pigments. A wooden phallus with onions or pomegranates for testes is attached to each "animal" excepting the "cow," who has a cloth udder with pendant cloth nipples fastened about his groins, and wears real cow horns tied to his head.

Those playing the parts of Muslimin wear large scrips full of ashes, representing gunpowder, and carry wooden rifles. The Jews and Christians carry these as well, and some of the latter drag log cannons.

The most effeminate looking youths are chosen to represent the wives of the Muslimin. They shave, use rouge and kohl, and draw the conventional tattoo marks on their faces with ink. They wear earrings and false hair.

The identity and preparations of the actors are kept secret beforehand. The *ishuikhen* dress and make up in the mosque or in a predetermined house; when ready they enter the houses of the *bone*, one after another, and stage their performance. Crowds follow them from house to house and witness the act over and over again.

First the Jews and their wives come in. They pair off in couples and dance over the floor, carrying on ribald conversation, snatching away each other's wives, approaching with wooden phalli, the women dancing with other men and throwing ashes out of scrips at each other.

After this has gone on for some time the Jews hold a wedding. While this is in progress the donkey and his driver enter. The Jews set the bride upon the donkey's back, and the donkey throws her off, whereupon the Jews become angry and shout incoherently. They then kneel down to hold a prayer, which a Judge leads. The Judge faces west and the Jews in all directions. In the prayer the Judge expounds the *harram* and the *ḥallal* in a loud voice, reversing everything from its normal condition, calling it permissible to eat pork, permissible to commit adultery with a good-looking woman, and forbidden to do so with an ugly one. The extent of these *harram* and *ḥallal* distinctions is limited only by the imagination of the Judge.

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While this is happening all the rest of the animals come running in and attack the Jews, who throw down their ashes and wooden guns and run away to hide. The animals, when the Jews have disappeared, are herded into a corner by their drivers. Then the Christians come in talking together loudly in a gibberish of extemporized sounds; an interpreter pretends to translate what they are saying to the audience, and accredits them with ludicrous and obscene conversation. He announces that the Christians have ordered all the attractive Moslem girls brought to the headquarters, one girl each day, for the enjoyment of the *ḥakim*, as the officer in charge of a tribal bureau is called.

After this the Christians dance with their wives, and then sit down and pretend to eat from bits of broken crockery which they have brought with them. The situation of people eating from separate utensils is in itself highly ludicrous to the Riffians.

After the meal the Christians and their wives dance again, after which the *ḥakim* performs his duties of administration. Prisoners are brought in, interviewed, and sentenced, and Muslimin who are not prisoners come in and try to sell things to the officers. Neither side understands the other, the Muslimin speaking *thamazighth* and the Christians still jabbering their gibberish. They begin to fight, and the tribal council convenes. The councillors appoint a crier, who shouts, "There is no god but God; O Muslimin, let us make holy war."

Then the *jihad*, or holy war, commences, both sides throwing ashes at each other, and the Christians dragging in cannon. While the fight is going on the Jews sneak out of hiding and going over to the Christian and Mohammedan women sitting on the side steal from them the eggs, meat, and bread which they are holding. One of the Jews makes a speech excusing this theft, saying that the ancestors of the Jews formerly had a great city and a great empire, but that the wild animals came in and destroyed their places and drove them out. Now they must steal to get a little of their property back. The Jews then go around the audience and collect eggs, almonds, sugar, and money.

Meanwhile the war is going on, all of the participants being by this time covered with ashes. Some of the contestants pretend to die or be wounded, and the women of their sides pick them up and take them to a corner, where they bandage the wounded. When most or all of them have simulated death, one woman from each side goes over to the corner where they are lying and touches all of her own kind, bringing them to life again. Finally the Muslimin win, and the Christians depart. The crier announces that the Christians have departed and that government and justice will be restored to the land.

Then the animals and their drivers come to the fore again, the drivers attempt to mount and are thrown, and the cow is milked.

After this they go to another house and give the performance again.

The *ishuikhen* perform once in each house in the village, excepting in those of "soured" individuals who do not approve of this vulgarity and will not permit it on their premises.

SUPERNATURAL BEINGS

Besides the Deity and the historic characters concerned with the Semitic religions, such as the prophets and the *soḥaba*, the Riffians commonly believe in nine types of supernatural being, only two of which are intimately associated with Islam. These are as follows:

1. *malakin*, the Semitic angels.

2. *jnun*, the jinns or genii, including the *afariṭ* and the *shaiyaṭin*. This class also includes the *thajinnishth*, a female jinn in the form of a beautiful woman, who meets men on

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the path or in the wilderness at night and seduces them. She usually leads them to a room beneath a stream, entered by a staircase running down through the water. Before allowing the man she has seduced to depart she exacts from him a promise never to reveal the place where her chamber is hidden. A man who breaks his promise will die as soon as the words have left his mouth.

The *jnun* which disturb the Riffians most are those which take the forms of dogs or jackals. Dogs with light eyes are believed to be *jnun*, and fierce jackals, transformed *jnun*, are said to guard treasure hidden in the bottoms of caves. Doors and shutters are closed at night to prevent *jnun* from entering and possessing the occupants. Hydrophobia is thought to indicate the entrance of a *jinni* into a man's body.

3. *er khier*, a ghost. Ghosts are said to be very tall and thin, and to travel about at night, especially in the neighborhood of cemeteries. They are sometimes able to strike at men with tongues of fire, and can appear and disappear at will.

4. *thasardunth imthran*, a she-mule, decked with bells. It comes out of cemeteries at night and eats people.

5. *er riaḥ*, a hot whirlwind which comes in summer, and is supposed to be a baleful supernatural being.

6. *thamza*, or *sṭuṭ*, an ogress. She is described as an ugly woman with long trailing breasts that touch the ground and squirt milk as she walks, long slobbering lips, and long, tangled, curly hair. She is able to change her form and appear as an enticing damsel, luring people to her house in order to eat them, and takes great delight in crunching and gnawing on human bones. This ogress lives in a house on a deserted part of a mountain.

7. *amziw* is the husband or male sex of the *thamza*. He resembles her in the configuration of his lips and in the form and condition of his hair. The *amziw* is also able to change his form and appear as a normal man, sometimes as an old man, and sometimes as a Negro. The *amziw* carries on the same means of livelihood as his wife, luring people to his house and eating them. The *amziw* is less frequently referred to in Riffian folklore than the *thamza*, and is apparently considered less common and less dangerous.

8. *bu seba ijjithen*, the Father of Seven Heads, is a creature large as a mule, possessing seven human heads. Its hind legs are those of an animal, and its front legs terminate in human hands. When travelling about the animal runs on all fours, but when in proximity to human beings rises on its hind legs and attacks its victims with its hands. From the nostrils and mouths of its seven heads it breathes fire. It eats its victims in the wilderness where it finds them, since it has no dwelling, wandering about and sleeping in deserted country. There is no mention of sex as applied to the *bu seba ijjithen*, wherefore one is led to conclude that it is either masculine or asexual. The *thamza*, *amziw*, and *bu seba ijjithen* are said to have been mortal, and to be long extinct.

9. *hajuj u majuj*, dwarfs, or gnomes. They live in subterranean caverns without exits to the surface. These creatures are as small as two-year-old children, bandy-legged, pigeon-toed, long-bearded, neckless, and bearing their heads directly on their shoulders. They are hunch-backed and wrinkled, and present every sign of senility, even while in infancy. They all go naked. Each day the dwarfs dig a passage upwards, with the intention of breaking through the earth's crust, issuing forth, destroying mankind, and taking possession of the earth. Each evening, however, they become tired, and say, "It is night now, and we are tired, let us go back to the center of the earth and sleep; there is not much work left

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for us to do; tomorrow we will finish the hole and get out." Each morning, however, when they go back to work, they find the hole which they made on the previous day filled with earth, and have to commence their work over again. The reason that their hole is filled each night is that in declaring that they will emerge the next day they neglect to say "*In sha'a Allah*," or "If God wills it." If once they should hit upon the idea of saying *in sha'a Allah*, the next day they would succeed in breaking out and would overrun the earth.

There is another legend concerning the dwarfs, which gives them quite a different interpretation. It says that far to the East where the sun rises is a land bounded on the west by an iron wall. On the east side of the wall live the *hajuj u majuj*, described as above, who are more numerous than mankind. If they should ever break down the wall they would overrun the earth. Both legends state definitely that their release would cause the extinction of mankind. The first version implies a gnome-like type of creature, and the second seems to take its inspiration from China. I heard the first in the Gzennaya and the second in Beni Bu Nsar.

Although these supernatural creatures are used mainly as subjects of folklore told to children by their mothers, they are nevertheless believed in by the adults, apparently without exception.

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CHAPTER XIII

MAGIC

THE types of magic employed in the Rif can be divided into four categories: (1) the *baraka* of alleged descendants of the Prophet; (2) *theira*, or magic requiring the use of written charms and based on the mystic interpretation of the Koran; (3) *theira* of the *jnun*, a type similar in form but involving the participation of the *jnun*, and the use of books other than the Koran; (4) *sohor*, or old women's magic, which does not involve the use of writing. To these may be added as allied topics: (5) the *ar* or shame-compulsion; (6) the *'ahd* or oath; (7) methods of counteracting the evil eye; and (8) the interpretation of dreams.

Both the shame-compulsion and the oath are essentially magical, and are therefore included in this chapter. The treatment of religious and magical phenomena in separate chapters is for convenience only and implies no generic distinction.

BARAKA

Baraka, or *er fthair* is usually confined to supposed descendants of the Prophet, and is dependent upon their possession of a magical emanation supposedly transmitted to them by him. *Baraka* is a force, a power, like the tabu of the Polynesians, and more like the *mana* of the Melanesians. A man possessing it is equipped with supernatural powers; he is able to predict the future, to perform miracles, and to heal or destroy by touch, or, through extension, by employing some object which has been in contact with his body, such as a part of his clothing, a piece of bread, or an egg which he has kissed.

A client wishing to know his future comes to the sherif at Targuist and presents his problem. On the ensuing night the sherif dreams about it, and in the morning tells his client what the future will contain. The client then pays a fee approximating five dollars and departs. The sherif is not limited to a single dream each night; he dreams as many as are required.

Not all Riffians believe in this magic, and only the inhabitants of Targuist and the Senhajan tribes under the control of the Ikhemrijen patronize the sherif regularly.

Persons suffering from any ailment whatever go to him to be touched. The sherif strokes the affected part, and exacts a fee of from thirty to fifty dollars. If the patient does not recover he and his relatives do not blame the sherif, but hold that the fatality is the *mektub*, or established fate, and that the soul's time has expired.

The sherif gives away pieces of cloth torn from his cast-off garments, which are taken away by the credulous and hung in their houses to prevent mischief from entering. In the *zawia* at Targuist are baked tiny loaves of bread, supposedly full of *baraka*; they are given away, the recipients being told that a quarter of a loaf will fill them completely. Eating this bread is a prophylactic against illness and any mischance.

The sherif, and ordinary saints as well, give away eggs previously received as presents or fees, for which they have no use. The eggs are considered to be full of *baraka*, and men take them home to eat with their wives, thinking thus to avert calamity.

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Women bring their children, ailing or otherwise, to the sherif, who chews a piece of salt and spits it into the child's mouth, whereupon the mother goes away satisfied.

Some of the shorfa are illiterate and ignorant, knowing little of the Koran. They are supported by their fees and by gifts of food constantly brought them.

The *baraka* is transmitted by heredity, but not to all the sherif's offspring. Some of the latter, disgusted with their father's trumpery, work and earn a living like ordinary men. Others stay in the house at all times and pose as examples of propriety and behavior, in order to carry on the traditional calling. A sherif who fights loses his *baraka* by so doing, and the same is true of ordinary saints,[1] few of whom nowadays are credited with supernatural powers. Even the Sherif of Targuist was said to have lost his *baraka* for capitulating with the French and Spanish after the surrender of Abd el Krim in 1926.

THEIRA

The type of magic depending upon writing for its efficacy is called *theira*. The students learn it in the cantonal mosque, and practice it while attending this institution and after they have finished their studies there.

Each student must make anew or copy his own manual, from which he is able to extract the charms fitting for each circumstance requiring magical treatment. He goes through the Koran listing all the nouns which have no direct reference to religion when read alone. He then matches beside each noun the phrase with which it is connected in the text, or the *sura* in which it is found each time it occurs. In this way each noun will have several different phrases or chapters following it in the finished catalogue. When a person requests a charm for a specific purpose, the student looks up the name of that purpose in his book and finds what phrases go with it. He must know the name of the person and the name of his or her mother, which he also looks up.

By a combination of the corollaries of the various nouns, including the purpose of the charm and the names of the participants, the student is able to decide which formula he shall write upon the charm, with what liquid and on what material; whether or not objects in intimate contact with the person to be protected or with the victim, or the hair of such a person, are needed; and by what means the charm shall be administered or used. The materials and methods used are listed below.

Liquids.

Ink made of burnt goat's horn boiled in olive oil. Christian ink will not work.
Blood of hoopoes.
Blood of owls.
Blood of bats.

Materials.

Paper of any kind.
Scapula, rib, or patella of a fox.
Scapula, rib, patella, or mandible of a hedgehog.
Snout of a wild boar.
Seven, fourteen, or twenty-eight olive leaves.
A peeled stick of female wild olive wood.

[1] See above, p. 148.

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Seven, fourteen, or twenty-eight leaves from the "sultan of oleander," an oleander the leaves of which grow in clusters of four instead of three.
A peeled pomegranate stick, three, five, or seven spans in length.
Seven, fourteen, or twenty-eight leaves of the reed.
Between one and seven split sections of reed. No single length of reed may be split in more than six sections.
One or three eggs.
A beaten-out strip of lead.

Parts of body or objects in intimate contact with it.

Hair cut from the head, the right or left side, depending upon the circumstances.
A bit of cloth from the victim's clothing.

Methods of disposal or application of the amulet.

Soaking it off and drinking the water or giving it to the victim. It is given to women in childbirth, and to women by their admirers to make them discontented with their husbands.
Burning it so that the smoke will be smelt by the victim, or, if he is asleep, inhaled. This is done to make a woman leave her husband or a husband divorce his wife.
Giving it to a person to eat. This is done only with the snout of a wild boar, which is cut into small pieces and mixed with food. The act is intended to cause anger between the one who eats it and some other specified person. This method is used by plural wives to throw other wives into disfavor with their husbands.
Burying it under the door or in the floor where a person sleeps. This will make the person who walks or sleeps over it rise up insane in the night and depart.
Shaking a stick. If someone shakes a pomegranate stick, prepared as specified, at a conceited man, the latter will boast so extravagantly as to get himself into trouble or make himself a laughing-stock.
Tying it in a tree near the victim's house. The woman who passes under or by it will become distressed, act as if mad, and go to the house of her parents. The wind must be moving the amulet at the time she passes for it to be efficacious.
Tying it to parts of the body. This is done to protect the person purchasing the amulet, to cure ailments, or to attract specified persons to the purchaser. A woman ties a hedgehog's jaw to her belt to insure her husband's fidelity; reeds or sticks may be tied over the stomach, and paper amulets on the forehead, neck, and upper arm. Amulets tied to the forehead are intended to cure headaches and to cause sexual attraction; on the neck, to cure ailments in that place and for attraction. Very rarely, women tie paper amulets about their ankles for attraction.

There is no special use for each kind of writing fluid; any one may be used with any type of material and for any purpose, depending on the details of the situation.

Paper may be used for amulets to be attached to any part of the body except the stomach or abdomen, for tying in a tree, for burying, for soaking off and drinking, or for burning.

Scapulae may be used for burning only.

Ribs, which are rarely used, are employed only for burning or for hanging in trees.

The patella is used only for tying over the abdomen.

The mandible of a hedgehog is used only for tying in a woman's belt.

The snout of a wild boar may be used both for soaking off and drinking and for cutting up and eating.

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Olive leaves may be used only for soaking off or for burning.

Oleander leaves may be used for soaking off or for burning. They are used especially in the treatment of malaria.

Pomegranate sticks are used only for shaking at a man to make him boast.

Split reeds are used only for burning.

Leaves of the reed have the same restrictions and use as those of the oleander.

Eggs are used only in the cure of sore eyes. The student passes the egg seven times around the orbit of the patient, then breaks the egg, finds a white speck of albumen in it, and throws the egg away. He claims that the speck of albumen is the illness of the eye, which he has removed. In bad cases he uses three eggs, one on each consecutive day for three days.

Amulets written on lead are used as protection agains *jnun* while walking alone at night and against bullets in battle, and are worn by women to prevent their husbands from doing them bodily harm should they be caught in adultery. When used for the last-named purpose they are very expensive.

Hair cut from the head is used as string to tie amulets to trees, and cloth cut from garments is used to wrap the amulet or to burn with it.

The type of amulet used for attachment to the body is rendered impotent if borne over a major stream, such as the Bayu, Nekor, Ghis, Kert, Muluya, or Wergha, or over the sea. Branches of streams do not count. There are two ways to prevent this: by putting the amulet in a loaf of bread with salt before crossing, and by sewing a sprig of an herb called *er ḥamr* in its case. This herb is rare, and is sold in markets for an exorbitant price.

In all cases in which more than one amulet, such as seven, fourteen, or twenty-eight leaves, must be employed, for burning, soaking, or the like, one must be used on each consecutive day after and including the first day; otherwise the charm will not work.

The price of the materials used in the charm is not included in the fee charged by the student. He requires the applicant to go out and get anything needed; he must kill a bat or hoopoe if the blood of either is necessary. Payment is not made until the treatment is finished, and only in case of success. Such is the complexity of the formulae employed and so great are the possibilities of error that failures are attributed to mistakes in technique.

This type of magical practice is not approved by everyone, and such actions are performed in secret. A clerk loses his position if he is caught writing amulets.

THEIRA OF THE *JNUN*

This is the same type of magic as ordinary *theira*, except that the formulae are obtained from various books. Only one half the data in the manuals is obtained from the Koran; the other half is extracted from other books, which deal with the *jnun*; these are very rare, and are kept hidden. This type of *theira* is more sinister and dangerous than the other, and is concerned, among other things, with the prevention of sexual intercourse among newly married couples. The following are typical examples:

1. The student writes on the palm of an applicant's right hand. The applicant looks at this until he sees *jnun* walking across it, in the forms of dogs, cats, and black men with evil faces, and clothed only in tall turbans.

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2. The student writes on the applicant's forehead, and the latter looks into a bowl of water until he sees the same spectacle as in (1). Sometimes, although rarely, he sees a battle.

3. A student cuts a piece of paper the shape of a silver Spanish or Hassani dollar, and by some privately known means transforms it into a real silver coin, which will remain silver for several hours, after which it will turn back to paper. He must get rid of it immediately and get away before it turns.

4. When a student wishes to find buried treasure he writes an amulet and cuts it into sixty pieces, one of which bears on it a certain indication. He goes to the place where the treasure is supposed to be, throws the sixty pieces of paper in the air, and digs under the place where the specially marked piece lands.

5. To retrieve a stolen cow, the loser hires a student to write an amulet on a piece of paper or on the stake to which the cow was habitually tied. If it is written on paper he ties this to the stake. He sets the stake where the cow was stolen, and leaves it there until the thief, as a result of this magic, becomes terrified and does not dare lead the cow out to pasture. The culprit becomes more and more frightened until he leads the cow out in the night, ties it in an occupied place, and sends a messenger to tell the owner where it is.

6. When a groom about to be married does not make a present to the students at the cantonal mosque, they coerce or take revenge upon him in the following manner. They write a formula on a new jack-knife blade, and sit by a path where the groom is expected to walk. One of the students holds the knife open, but concealed from view. When the groom passes, the student holding the knife calls to him by name, and while the groom is replying, snaps the knife shut. As a result, the groom will not have an erection until the knife has been opened again. If he encounters this difficulty on the final night of the marriage and suspects the cause, he may persuade the students to open the knife by giving them whatever presents they demand.

7. If a boy and a girl are lovers, and the girl is forced into a marriage with another, the boy may go to a student with a loaf of bread. The student writes on it and breaks it into seven pieces. The boy takes these to the bride, who eats one each day of the seven days of the feast. The groom will then be unable to have an erection with that girl until he can find a student to write a counter-charm, which is very difficult. It is said that this procedure will almost inevitably cause the groom to divorce his bride.

8. A man who wishes to marry another man's wife may give an old copper *soldi* to an old woman intimate with the object of his desires, or to the sister of the wife, if he can persuade the sister to be in league with him. The woman who has taken the *soldi* arranges to sleep in the room with the wife, and during the night, while the latter is asleep, passes the coin into her vagina and out again. She then cuts off some of the wife's hair, and the next day gives the *soldi* and hair to the man who gave her the coin. He takes the two objects to a student, who writes on the *soldi*. The man then drives a stake into an irrigation ditch and ties the *soldi* to it with the hair. When the coin commences moving back and forth with the flow of the stream, the wife will commence menstruating, and as long as the coin remains in the stream and keeps moving she will continue to do so. When the husband has become exasperated at this and has divorced her, the man removes the coin from the stream, whereupon the woman ceases menstruating. The man may then ask for her in marriage.

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OLD WOMEN'S MAGIC

This type of magic, known as *sohor*, does not involve the use of writing, and is not performed by students. It is the exclusive property of women. The following will serve as examples:

1. When rain falls during a wedding, old women take a bit of the bride's headcloth and stick seven needles into it. They then fasten it to a pole and set it on the roof. This is supposed to stop the rain immediately.

2. When, on the other hand, rain is desired, old women take a *thefeira*, or wooden bread-shovel, and dress it as a bride in the clothes of a bride who has recently been married for the first time. The unmarried girls carry the shovel around to all the houses, and to the mosque and saint's tomb, if there is one, shouting a request for God to send rain. When they have taken it to all the houses in the village they set it up in a grain field, preferably a field of barley. Although they do not expressly say so in the formula which they chant, their idea is to induce the rain to take its bride.[1]

3. When women of one family are jealous of the women of another at a wedding, and wish to exceed them in skill at singing and dancing, an old woman of the first family chews up a mouthful of salt and oil and spits this into the drum-warming fire. This will cause the rival women to fight together and leave the wedding.

4. When a young couple are in love and the boy changes his affection and marries another girl, the mother of the slighted girl invites the boy to enter her house. She sits in a corner holding two wool-cards with unwashed wool between them. She calls out the boy's name, and as he answers takes a stroke with the cards. She does this three times, and if he has answered each time she locks the cards together and puts them up in the rafters. As long as the cards remain there he will be unable to have an erection. In this case the wool serves as a symbol of softness.

SHAME-COMPULSIONS

The shame-compulsion, called *ar*, is claimed by the Riffians to have no sorcery in it, but to be based on the use of shame as an effective agent. Its principle lies in one man's doing something ceremonially which will shame another into doing something against his will. The shame-compulsion is connected with hospitality. Just as it is unthinkable to refuse to give food to a guest who enters your house, or to refuse food offered in the house of another, so it is unthinkable to refuse to comply to a shame-compulsion.

If a man should refuse a shame-compulsion some great calamity would befall him; he or one of his family would die, and all mankind would cease to respect him. He would lose his entire social standing. Examples of the shame-compulsion follow:

1. A *bone* hard pressed in a feud, wishing to ally itself to another *bone*, passes *in toto* men, women, and children, to the village mosque of the other *bone*, leading with them a bull if possible, otherwise a cow or a goat. The schoolmaster of the first *bone*, or one of its members who is a student at the cantonal mosque, slaughters the animal sacrificially in front of the mosque, in such a way that the blood will spurt out and hit the door. If this fails to

[1] S. Biarnay (*Etude sur les Dialectes Berbères du Rif*, pp. 174–178), in a text written in the dialect of the Bokoya, gives a complete account of this ceremony. My account is from the Gzennaya in particular, although this rite is practiced in many tribes of the Rif.

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happen, however, the shame-compulsion still holds. The *bone* upon which it has been worked is forced to ally itself with the supplicating group, forming *liff* [1] with it.

2. A man condemned to pay a fine in consequence of a murder goes to each house in the *canton* with an open knife held in his teeth and knocks on the door. Those within must make him a present. When he has in this way collected the amount or residue of his fine he pays it, and he does not have to pay back the money he has taken. This type of shame-compulsion is called *er ftheith*.

3. A man fined for murder who has property to sell, but insufficient time in which to do so, leads a goat to the house of a man whom he knows to have ready cash, and sacrifices it in front of the door. The man thus appealed to is compelled to loan the money immediately. After the murderer has sold his own property he must repay his acquaintance.

4. When a family is besieged in its house in a feud, and sees no prospect of getting out, the women and children depart, being immune from harm, go to another *bone*, sometimes even to another tribe, and enter the house of the most important person in that place. This action constitutes a shame-compulsion upon the inhabitants to ally themselves with the worsted party.

5. A has had a feud with B. This has been patched up by payment, and the two have been living tranquilly for some time. Suddenly A again becomes angry with B and takes a shot at him, while he is unarmed, but misses. B runs to a woman of A's *vein* and touches her nipple with his mouth, drawing out milk if she has any. This prevents A from killing B, since it places the two in the position of foster-brothers, by extension.

6. When a family is besieged as in (4), and the besiegers, contrary to custom, will not let the women and children out, the besieged send out students or saints to pick up their dead and carry them to the village mosque of another *bone*. The latter set these corpses down in the mosque, and the *bone* which owns the mosque is bound to ally itself with the besieged and relieve them.

7. When a tribal council has burned the house or houses of a *vein* or *bone*, the members of which flee or are exiled, the victims in passing through another tribe are attacked. They go to the village or cantonal mosque of the attacking group, sacrifice a cow there, if they have saved one, and enter the mosque. The inhabitants give the victims a house and food, and their tribal council goes to the councillors of the victims' tribe to demand their reinstatement. If this is refused the two groups fight, since a powerful shame-compulsion has been effected.

8. When a *bone* is hard pressed in a war and all others in the neighborhood have allied against it, the *bone* dresses an attractive girl in the costume of a bride, hennas and tattoos her, mounts her on a mule, leads her to a neutral *bone*, and gives her to a councillor as wife. He is forced by shame-compulsion to marry her, and his *bone* must ally itself with hers.

OATHS

The *'ahd*, or oath, is an agreement for mutual protection or mutual peace sworn to between two persons or two groups over the grave of a saint. In the case of two persons, one stands at either side of the grave, and the two clasp hands so that their fingers interlock. In this position they recite, in *thamazighth*, the formula "Let the *'ahd* of the Lord God be

[1] See above, p. 105.

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between us." If there are two groups of people "making *'ahd*" together, as many of each group as there is room for face each other across the grave. When these have made *'ahd* others fill their places, until all have taken part. An *'ahd* cannot be broken without retribution falling afterwards in some unforeseen way. The following list covers some of the situations which call for the making of *'ahd*.

1. Two men wish to make a covenant not to harm one another.

2. A man fears that a friend will deceive him with his wife, and asks the friend to make *'ahd* with him. This is done at times by men about to start on journeys.

3. One man hires another to commit murder; the two may confirm the agreement by making *'ahd*.

4. A man makes *'ahd* with his wife so that they will have confidence in each other.

5. Adulteresses make *'ahd* together to insure mutual secrecy.

6. *Bones* which have been allied in *liff* and which begin to mistrust each other make *'ahd* as groups. This involves breaking bread at the tomb and exchanging the pieces.

7. *Fifths* allied in *liff* make *'ahd* to continue that condition, under the agreement that the first *bone* to break it will be punished by the destruction of its property and by exile. This punishment, of course, implies the consent of the tribal council. In making this type of *'ahd* the councillors of the two *fifths* meet in a saint's tomb, and not only break and exchange bread but also sacrifice a bull.

Besides the serious *'ahd*-making of grown-ups, children build toy graves of pebbles or small stones and play at making *'ahd* over them.

THE EVIL EYE

The evil eye is thought to exert its baleful influence mainly against vegetable gardens and women and children. An old soot-blackened pot, a mule's skull, or a black cloth is put up on a pole in the garden, and acts as a prophylactic. In red-pepper patches goat droppings are tied up when the peppers are in flower.

Pairs of goat horns are tied on pomegranate trees to keep the flowers from falling when a person with the evil eye looks at them.

To keep the evil eye from harming a child, a boar's tooth may be hung about its neck on a string. Women protect themselves by tying cowrie-shells into their belts.

INTERPRETATION OF DREAMS

In the Rif it is thought that dreams dreamed in the summer will come true, while those dreamed in winter will not, since the world is turned around at that time. Dreams of an ominous nature are mostly symbolical. The following are a few examples:

1. If you dream that you see a man naked, poverty will befall him. If you dream that you yourself are naked, no harm will result.

2. If you dream that you see a wedding company disporting themselves in the house of one of your relatives, then one of your relatives, not necessarily the same one, will soon die.

3. If you dream that you or someone else falls into a stream or a stream-bed, the government will shortly make trouble for you.

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4. When you dream that you mount a horse, or that someone else mounts, whoever mounted it will soon die.

5. When you dream that a snake bites you, you will fall ill.

6. When you dream that you talk with a man who has previously died, and that man asks you for some possession of yours, and you give it to him, then your son or brother will die.

7. If you dream that a procession of dogs, walking in single file, marches out of the door of your house, then a member of your house will die.

It is explained by those relating this superstition that nakedness is equivalent to poverty, weddings and horses are synonymous with death, snakes with illness, dogs with mourners, streams with the government, and that to have something taken from you is to have your son or brother taken.

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CHAPTER XIV

ANALYSIS OF THE DISTRIBUTION OF CULTURAL FACTORS

We have seen in studying the culture of the Rif, Senhaja, and Ghomara that there are three types of factors involved: those located in the center of the Rif and apparently basic there; those held in common with the other peoples of Morocco and representing the modern North African civilization, and those neither basically Riffian nor a part of the usual North African culture. In all parts of the Rif, Senhaja, and Ghomara, the prevailing stages of culture, both material and social, are about equally advanced, with certain notable exceptions, as at Taghzuth, where industries are well developed, and in the regions of the Garet and of Ktama and the Western Arabophone Senhaja, where rigorous extremes of environment have stunted the development of certain kinds of material culture. One cannot divide the region into zones of high or low culture; one may merely distinguish between the kinds of culture in different places.

I have chosen twenty-eight features of material culture and thirty-three of social culture which I believe to be nuclear or central Riffian. By this I mean that they represent the most fundamental pattern in the area, and show less evidence of introduction from outside in any but remotely ancient times than features which may replace them in other tribes, or which may exist on the margins without parallels in the center. The lists of these features follow:

Central Riffian Material Culture

(Twenty-Eight Traits)

1. Roasted grains
2. Bake-oven
3. Absence of skillet
4. *Kadid* and *thamarik* (dried meats and purées)
5. Sausages
6. *Sammet* (grape jelly)
7. Tar
8. Porch
9. Projecting *arof* (loft over the cow-pit)
10. Absence of second story
11. Sloping roof
12. Shingles
13. Possession of *amiyimoth* (eave-sheathing)
14. *Amiyimoth* made of wood
15. Cribwork
16. Stools
17. Hand-made pottery
18. Riffian design on pottery
19. Wickerwork
20. Absence of horizontal loom
21. Buskins
22. Clogs
23. Stilts
24. Retention of median occipital lock
25. Shaving of face
26. Tattooing, type 2
27. Absence of kohl as regards groom
28. Total absence of kohl

Central Riffian Social Institutions

(Thirty-Three Traits)

1. Tabu against the Shameless Ones
2. Political office tabu
3. Two or three councillors in market
4. Council of the great
5. Village council
6. Freedom from shorfa
7. Sex restriction forty days after birth
8. Naming on seventh day
9. First haircut at one year of age
10. Circumcision early

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11. Itinerant preceptor performing circumcision
12. Local preceptor performing circumcision
13. Wedding feast seven days
14. Hospitality all days of wedding feast
15. One or two *iuziren*
16. Many *iuziren*
17. Wedding in September
18. *Zammar*-playing at Wedding
19. *Sabḥain er-raztḳ*
20. Cutting of reed
21. Stick headdress
22. Brother mounts behind bride
23. Difference in treatment of divorcee
24. Ring type of dancing
25. Funeral hospitality
26. Definite time for burial
27. Whole village attends funeral
28. Corpse carried on door
29. Bearers changed frequently
30. Grave measured with finger-span
31. Flat stones, differentiated, as markers
32. Stones placed where corpse set down on way
33. No one in house at time of death may leave for seven days after burial

Under material culture, I have purposely omitted agriculture and the care of domestic animals because these complexes seem so dependent upon environment for their distribution that to include them would unduly weight the classification. Other traits included admittedly depend upon environment, but to a lesser degree and in a less direct way. House types, for example, which I have called central Riffian are today found in more complete form in the Senhaja Sghir than in the Rif. The environment which permits the construction of these forms includes an abundance of coniferous timber which formerly grew in the Rif but which today is found in large quantity only in the Senhaja Sghir.

Deforestation has prevented the perpetuation of the more difficult features of this house-type complex in the Rif, but the essentials still remain, although poorly executed. In other ways the Senhaja, living in an environment which formerly typified the central Rif, have been able to preserve the Riffian material culture as far as the continuation of an abundance of wood and of rainfall permits. In the bulk of their material culture, however, the central Riffians still maintain to the greater conservatism.

In the list of social institutions I have included a number of traits involving the connection of official religious personages with the crises in the life of the individual, crises with which only laymen are involved in other parts of our distributional area. This employment of religious personages is not unique, since it is found in Fez, and among other Arabs who preserve the old Moorish traditions in this time of ritualistic decadence. I personally attribute the presence of these traits in the central Rif to the influence of the old kingdom of Nekor, and to a lesser extent to other media of the diffusion of Arab cuture in the days before the invasion of the Beni Hillal. So integral and necessary a part of central Riffian culture have they become that to separate them from the other traits would defeat the purpose of this analysis. The social institutions of the central Rif must be considered a stable blend of old local factors and early Arab ingredients.

In order to present the distribution of the varying intensity of these criteria it is necessary to decide what sub-areas shall be treated as units. I have so treated each sub-area no smaller than a *canton* which has a different cultural pattern in either of the two classes of criteria than any of its contiguous neighbors. Identical sub-areas which are contiguous are treated as one, no matter how large the combination of them may be.

Each sub-area so determined has been given two scores, one in material culture and the other in social institutions. These scores represent the number of traits in each category which the sub-area possesses. Thus the possible range in the case of material culture is 0–28, and in social institutions 0–33. The actual ranges are in material culture 0–26, and in social institutions 2–33.

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SEVENTY SUB-AREAS AND THE CULTURAL SCORES OF EACH

	Material	Social
1. Kebdana	5	2
2. Masuza and Ait Shisher	6	2
3. Beni Bu Ifrur and Beni Sidel	6	12
4. Beni Bu Yafer	5	2
5. Beni Said	5	22
6. Temsaman bordering Ulishk	7	24
7. Temsaman bordering Urriaghel	7	26
8. Northern Beni Ulishk	5	20
9. Southern Beni Ulishk and Tafersit	4	9
10. Beni Bu Yahyi	0	6
11. Eastern Metalsa	1	6
12. Western Metalsa	1	9
13. El Azib of Meidhar, Beni Tuzin	6	13
14. Western Mountain Beni Tuzin	8	23
15. Rest of Beni Tuzin	7	23
16. Ajdir	12	27
17. Beni Hadifa	13	26
18. Southern Mountain Urriaghel	25	32
19. Rest of Beni Urriaghel	13	27
20. Shawia	6	11
21. Beni Mohammed	8	17
22. Khebaba	8	14
23. Beni Yunes	7	24
24. Ulad Alu ben Aissa	11	26
25. Ikaroen	9	22
26. Iberrassen	13	28
27. Mellal, Ibershliyen	7	12
28. Inhanahan	10	14
29. Bured	11	22
30. Temjunt	18	31
31. Iberrushen	22	33
32. Ikhuanen	21	33
33. Southern Beni Amart	26	31
34. Northern Beni Amart	26	30
35. Beni Mesduy facing Targuist	10	3
36. Beni Mesduy facing Zarket	10	6
37. Targuist	4	3
38. Bokoya	5	8
39. Beni Itteft and Beni Bu Frah	3	6
40. Mestassa and Mtiwa	3	2
41. Zarket	12	20
42. Beni Gmil	7	19
43. Beni Bu Nsar	12	21
44. Beni Seddath and Beni Khennus	11	20
45. Hamid	9	20
46. Beni Beshir	10	21
47. Beni Bu Shibet	11	19
48. Taghzuth	10	21
49. Ktama	11	21
50. Zrarka	5	21
51. Muziet	5	18
52. Ain Mediuna	6	23
53. Bu Adl	6	24
54. Rgheiwa	5	17
55. Beni Ulid	5	20
56. Khunduktamda	5	22
57. Beni Koraa	6	23
58. Taunat and Bab Wendar	5	21
59. Fenassa	5	23
60. Beni Wenjin	5	24
61. Amshesh	5	20
62. Ulad Azam	3	22
63. Beni Krama	5	23
64. Marnissa	6	23
65. Branes	5	17
66. Ulad Brahim	5	21
67. Burda	5	23
68. Aghbalu	5	18
69. Western Arabophone Senhaja	6	18
70. Ghomara	4	5

The maps which accompany this discussion will help to visualize the distributions. Both are clearly centered in the tribes of Beni Urriaghel, Beni Amart, and the northern part of Gzennaya. The material culture trails out to the east along the mountain divide, through Zarket to Beni Bu Nsar, Beni Seddath, Beni Khennus, and Ktama, as well as Beni Bu Shibet. In the places where invasions have taken place, except in the Senhaja, and in the Maritime tribes (for whose members contact with the outside world has been relatively easy), the paucity of the central Riffian material culture is noticeable. It does not necessarily follow that the basic traits of central Riffian material culture ever extended to the margins of what is today the Rif, but that many of them once extended somewhat beyond their present boundaries is probable. Perhaps if one were to work out the distribution of material culture among all Berber groups similar states of affairs might elsewhere be found. Without such check material worked out in a comparable manner it is impossible to determine accurately whether or not the material complex surviving in the central Rif is a local phenomenon or one of several such peaks of older culture thrust through the surface of a more modern accumulation.

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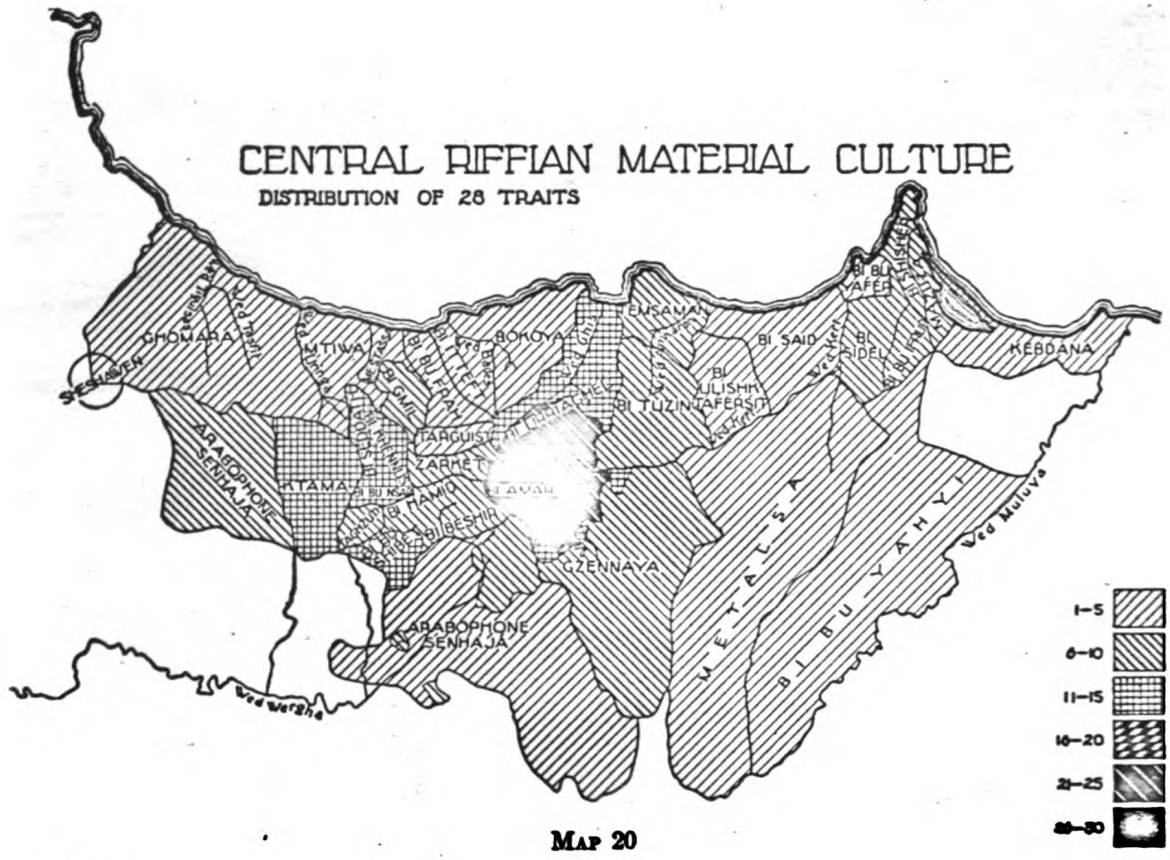
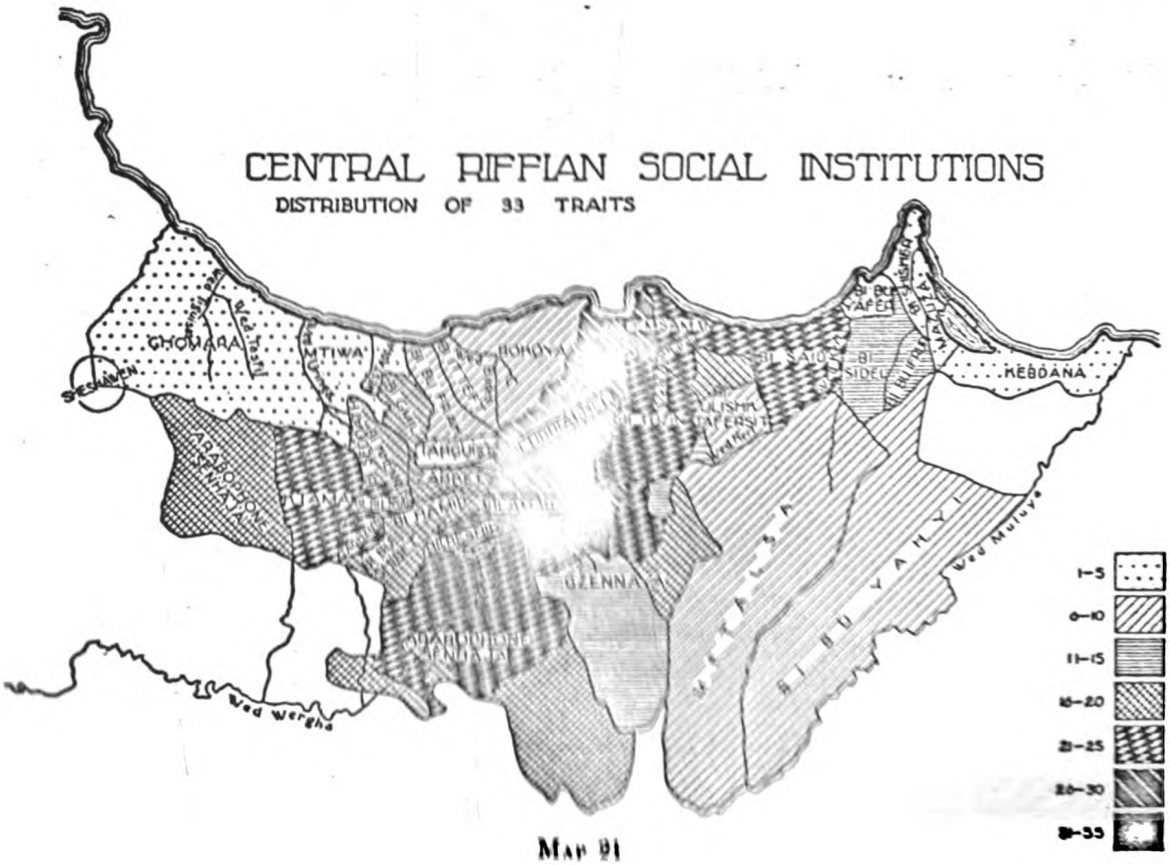


MAP 20



MAP 21

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The social features appear more widespread than the material, which is but natural, since they are not so subject to the limitations of environment. They extend along the coast to the east far beyond the eastward range of the bulk of the material factors, and southward into the Eastern Arabophone Senhaja, which is separated from a parallel intensity in the tribes of Taghzuth, Beni Bu Nsar, and Ktama by a surprising weakness in the Senhajan tribes which are of greater strength in material culture. This would indicate that the Senhaja, in the strongest points of their invasion, did not take over Riffian social traits as enthusiastically as they did the coincident

MAP 22

material culture, and that the outlying Senhajan tribes, out of the main path of the invasion, retain or have adopted Riffian social traits in greater intensity. The paths of invasion from the southeast and of diffusion from the northwest are more clearly shown in the map of social institutions than in that of material culture.

In order to compare the two types of culture more clearly, let us resort to a slight exercise of statistics, finding the mean number of traits of each kind possessed by the seventy sub-areas, and the mathematical expression of their coincidence.

Material Culture, 28 traits.	
Mean $= 8.22 \pm .45$	$\frac{M \times 100}{N} = 29.36$
$\sigma = 5.50 \pm .32$	
Social Institutions, 33 traits.	
Mean $= 18.40 \pm .66$	$\frac{M \times 100}{N} = 55.76$
$\sigma = 5.50 \pm .32$	

Correlation between social and material scores in the sub-areas, $+.61 \pm .03$

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Multiplying the mean by 100 and dividing the result by the total number of traits counted in each case gives a pair of comparable figures which show the much greater relative extent of the sociological compilation. The correlation between the numbers of social and material traits found in each sub-area expresses the degree of relationship between the two divisions of the complex. The relationship is significant far beyond question, but by no means approaches identity.

The third map of the series, on which are stippled only those sub-areas possessing more traits of each class than does the mean of that class, expresses this relationship clearly.

The cultural traits which are not central Riffian and which present unusual features marking them as different from the ordinary Moroccan pattern are found more strongly rooted in the southeast and the west than elsewhere. The eastern elements may be divided into those reputed to be of Zenatan origin and those to which only the title Nomadic may be safely applied, since they are adapted to a nomadic life and some of them are used by Bedawin, Braber, and other unassociated nomadic groups.

The following lists indicate the criteria which, without division into material and social traits, I have chosen to identify with the combination of Zenatan and generalized Nomadic culture. To separate them into Zenatan and Nomadic would perhaps render finer results, at the same time exposing the general thesis to a greater possibility of error. Hence I have chosen to keep them combined in one relatively convenient and safe, if generalized, category.

Nomadic and Zenatan Traits

1. The sloughi (reputed to be of Zenatan introduction)
2. Tents
3. *Afarai*
4. Brush *amiyimoth*
5. Cheese
6. Skin and iron containers only
7. Stake-loom for manufacture of goat-hair and *halfa* cloth
8. Cross-strap sandals
9. *Silham*
10. Men's *haik*
11. Zenatan type of tattooing
12. Tattooing with cross designs
13. Same type of tattooing on men
14. Scalplock hanging from left side of occiput (Zenatan only)
15. Groom sleeps in bride's father's tent during all but the last night of the wedding week
16. Mixed singing with flute-playing at wedding
17. Burial without stones
18. Burial without stones with the employment of a mule

By including the sloughi I have broken the rule established with Riffian traits of excluding domestic animals from the count. I have done this because the sloughi is not dependent upon environment, and because it bears so definite a tradition of Zenatan origin. Since there are two different tattooing types included in this combined roster, one Zenatan and the other perhaps related to the Braber, the complex might be split into two if we could determine which was responsible for other features. Possession of the *haik*, tents, and *afarai* may be accredited to both; either each has brought them in, or one may have used them there for a long time and the other brought them in as well.

On the following page is a list of scores for sub-areas.

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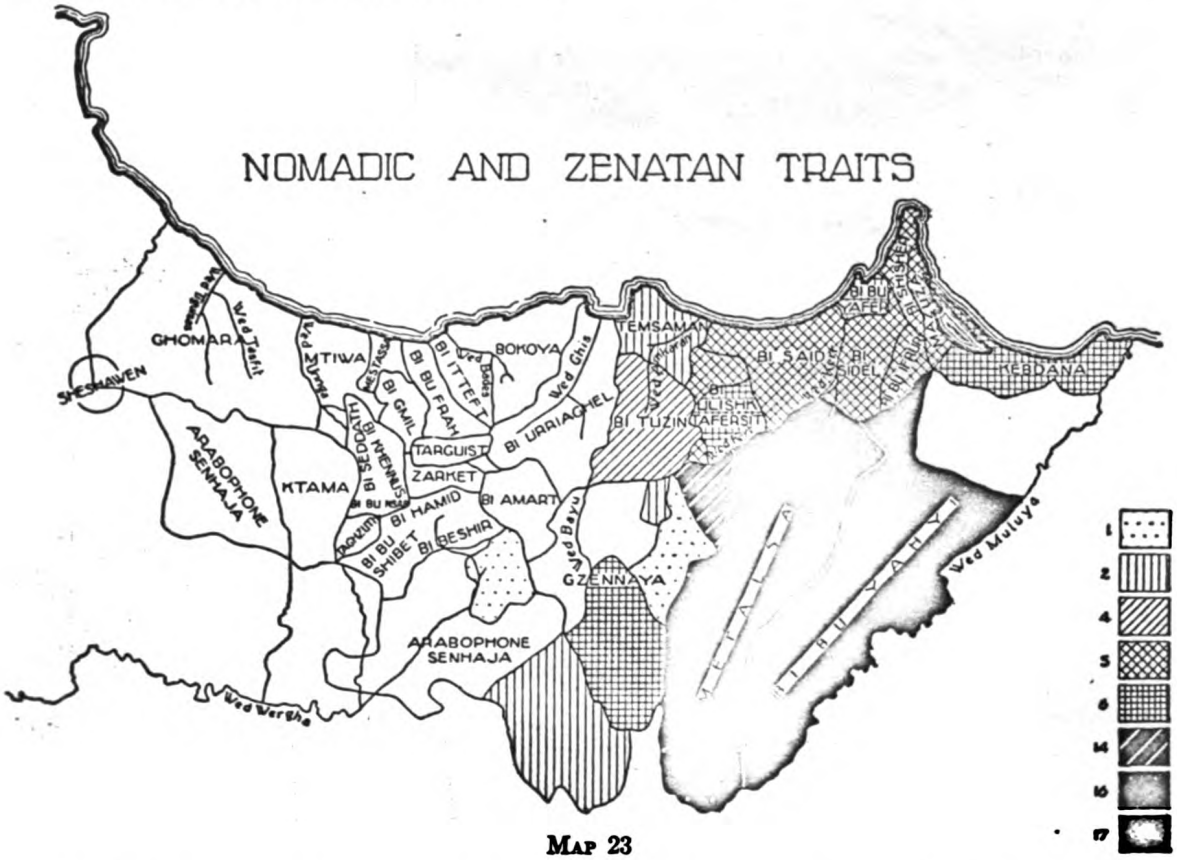
Score of Combined Nomadic and Zenatan Traits

Beni Bu Yahyi	17	Northern Ulishk	5
Eastern Metalsa	16	El Azib of Meidhar	5
Western Metalsa	14	Rest of Tuzin	4
Kebdana	6	Shawia	6
Beni Bu Yafer	6	Khebaba	2
Rest of Galiya	5	Bi Mohammed	1
Said	5	Branes	2
Temsaman	2	Marnissa	
Southern Ulishk and Tafersit	6		



Map 23

The distribution of these scores is heavily centered among the nomads, and very lightly diffused among the sedentary tribes in contact with them. It is curious that Marnissa and Branes, located in the Senhaja, possess some of these traits. In the case of Marnissa, it is perhaps a reflection of the easterly position which el Bekri gave it.[1]

In the west there are again two groups of alien factors, which might well be lumped into one to avoid mistake in identifications. The Senhajan cultural elements which do not coincide with central Riffian usage are:

1. Tattooing, Senhajan type
2. Scalplock hanging from right side of occiput
3. Thatched *amiyimoth*
4. Thatched roofs
5. Cork used as roofing and as bedding
6. Absence of pottery

[1] Page 181.

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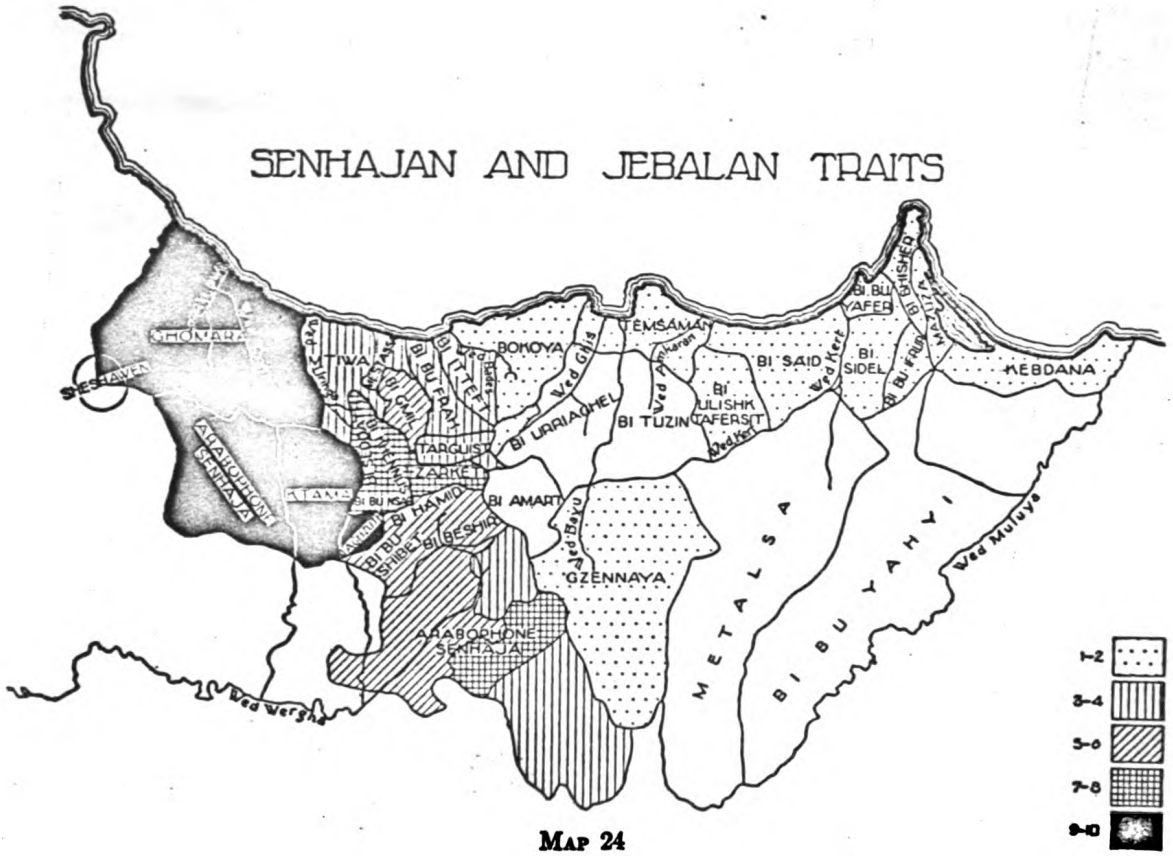
Those which may be Senhajan, but may rather be Ghomaran, or, on account of their wider diffusion, Jebalan, are:

1. Rectangular brush house
2. Use of hemp as a drug
3. Toe-strap sandals
4. Leggings for women
5. Tie-dyeing
6. Use of rheta and drum at weddings
7. Boy-markets



MAP 24

SCORE OF COMBINED SENHAJAN AND JEBALAN CULTURE

Ghomara	10
Taghzuth	9
Ktama	9
Western Arabophone Senhaja	9
Beni Bu Nsar, Khennus, Seddath	8
Zarket	7
Khunduktamda, Beni Krama	7
Beni Gmil	6
Beni Hamid, Beshir, Bu Shibet	6
Ain Mediuna, Zrarka, Beni Koraa, Ulad Azam, Bu Adl, Bab Wendar, Muziet	6
Rest of Eastern Arabophone Senhaja	5
Branes, Marnissa	4
Targuist	4
Beni Mesduy	3
Maritimes	3
Bokoya	2
All Gzennaya excepting Shawia and Iherrushen	2
Shawia and Iherrushen	1
Kebdana, Galiya, Beni Said, Temsaman, Beni Ulishk, Tafersit	1

This combination of traits extends much farther to the east than the eastern culture did to the west, since it is not as dependent on a specialized environment for the diffusion

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and maintenance of many of its traits as is the latter. The traits which spread farthest are Senhajan rather than Jebalan.

If we were to give scores on Senhajan features alone, Taghzuth and Beni Bu Nsar would take the lead, which in the merger belongs to the Ghomara. As is the case with the eastern culture, however, it will be safer to refrain from any separation.

The areas in which distinctive cultures have been partly replaced by traits common throughout Morocco do not deserve special treatment, since they are those which have figured in the background in the discussion of all three combinations of complexes. Such are notably the Maritime tribes, Bokoya, Targuist, southern Gzennaya, and the eastern tribes of the Rif.

It is curious that language has so little correlation with culture in Northern Morocco. In Galiya and Kebdana, where Riffian culture is very diffuse, Berber is spoken with no signs of an impending transition to Arabic. If any linguistic influence is becoming serious in the east, it is that of Spanish. In the Eastern Arabophone Senhaja, where Riffian culture is still quite strong, Berber has almost entirely died out. On the other hand, the adoption of Arabic has followed and is following the adoption of Arab cultural traits among the Maritime tribes and in Targuist.

Summary. A compilation of the traits of material and social culture which are characteristically Riffian shows that these traits are definitely concentrated in what may be called the Central Riffian Nuclear Culture Area, comprising northern Gzennaya, southern Beni Urriaghel, and Beni Amart. This area may be regarded as the stronghold of archaic culture in Northern Morocco.

The Riffian type of material culture extends westward through the Senhaja Sghir, being retained in this region by the survival of an abundant coniferous vegitation; the social pattern, on the other hand, stretches eastward through the true Rif, in which changes of environment have altered certain factors of material culture, while old social factors have been retained in greater intensity.

Cultural elements of Zenatan and Nomadic origins are concentrated in Beni Bu Yahyi, and become diffuse the further one goes into the Rif from that tribe. In the Central Riffian Culture Area these traits are entirely absent.

Cultural elements of Senhajan, Ghomaran, or Jebalan origin are concentrated in the Ghomara and in Ktama and Taghzuth. The rest of the Senhajan tribes show them in reduced degree, and some of the Riffian tribes have adopted a few of them. The Eastern Arabophone Senhaja shows itself more Riffian than Senhajan in culture.

There is but slight correlation between the retention of Berber speech and the retention of older cultural patterns: in the east the language is maintained undiminished despite profound cultural changes; in the west and southwest the opposite is the case.

This analysis indicates a certain degree of cultural stratification in the general area comprising the Rif, northern Senhaja, and Ghomara. The older complex, surviving in greatest strength in the central Rif, may represent a culture which was once widespread over the Berber world; or it may be uniquely Riffian. Further compilations in other parts of North Africa are needed before this question can be answered.

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PART TWO

RACE

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CHAPTER XV

THE ANTHROPOMETRIC SERIES; COMPARATIVE DATA

THE anthropometric series which forms the basis of the second part of this volume consists of measurements and observations made upon 1292 individuals, all Moroccan, or Saharan, and all Moslem. Of these all but five are males. Numbers 1 to 15 were measured in the summer of 1925, with Thomas Scudder recording; numbers 16 to 1055 during the period between June, 1926 and April, 1927, with Mrs. Coon recording; and numbers 1056 to 1292 during the summer of 1928, with Mrs. Coon again recording. The measuring technique established by international agreement has, in all but chest measurements, been followed. Peculiarities of method will be discussed under the measurements concerned.

This series has been divided into six major groups, to be called, in the tables and discussion which comprise the second portion of this volume, by the following names: Rif, Senhaja, Ghomara, Sheshawen, Arabs, and Shluh.

The Riffian series includes individuals from every tribe in the true Rif, as listed in Chapter I of Part 1. A list of the number of individuals for each tribe will be given later. The "Senhaja" include the tribes of the Senhaja Sghir and the Eastern and Western Arabophone Senhaja as defined in Chapter I of Part 1. The "Ghomara" include, as the name implies, members from all of the Ghomaran tribes. The group called "Sheshawen" consists of individuals of old Sheshawen families who trace their ancestry to Granada and other cities of Andalusia. They claim that their ancestors were Andalusians who, being expelled from Spain by Ferdinand and Isabella, took up residence in Sheshawen and became the ancestors of the bulk of the modern inhabitants of that city. In the series which represents this group, only one individual had a grandparent from outside, in this case a Riffian. I have left this individual in the series since probably this type of mixture has been going on at Sheshawen in limited quantities during the last four centuries. However, these people are probably as pure representatives of the old city-dwelling Andalusian Moorish stock as one could find today, and form an important link between the pure Moroccans and the old Moslem population of southern Spain.

Under the term "Arabs" I have thrown together many small groups of Arabic speaking peoples who today inhabit the plains of Morocco, from the region south of el Faḥs of Tangier to the northern limits of the Haha tribe of Shluh, and to the foothills of the Atlas and the Jebala. A few Ulad Stut and Beni Ukil of the Garet have been included, and a handful of Saharan Arabs. I have omitted all habitual town-dwellers, taking only the agricultural and nomadic populations. The bulk of this series comes from the tribes of Rehamna, Dukḳala, 'Abda, and Shawia. This series thus represents for the most part a mixture between the plains-dwelling Berbers of Morocco and the Bedawin who formed the second Arab invasion of Morocco. It is without doubt the most mixed group in my series and the most typical of the generalized Moroccan population, exclusive of the city-dwellers.

The "Shluh" include all Atlas tribesmen occupying the mountain territory southward and westward of Demnat, and also the inhabitants of the Sous valley and the Dra. The majority come from the tribes of Glawa and Msiwa and from the Sous, although all the other groups are represented.

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Besides these six major groups, there are other individuals who have not participated in this study. Such are a series of Braber, too small to be used, an Anjera series, miscellaneous Jebalans, neither Senhajan nor Arab in origin, likewise too few in number, and individuals from all the larger cities of Morocco. The series of five women, of whom four are Riffian, cannot, of course, be used.

The Riffian series is divided numerically as follows:

Kebdana	14	Urriaghel	64
Mazuza	30	Amart	22
Galiya	55	Targuist	18
Nomads	29	Bokoya	24
Said	30	Maritimes	22
Ulishk	53	Inter-tribal mixtures	27
Temsaman	49		
Tuzin	38	Total Rif	530
Gsennaya	55		

These designations should be regarded as abbreviations. I have divided Galiya into "Mazuza" and "Galiya," the latter including the four *fifths* of Ait Shisher, Beni Bu Ifrur, Beni Sidel, and Beni Bu Yafer. After seriating each *fifth* of Galiya separately, I found a practical identity in all respects between these four *fifths*, as distinct from Mazuza, and hence seriated the four *fifths* as one group.

The term "Nomads" includes the tribes of Beni Bu Yahyi and Metalsa. Under "Ulishk" I have included Tafersit, and under "Urriaghel" the problematical *fifth* of Beni Hadifa. The term "Maritimes" includes the Beni Bu Frah, Beni Itteft, Mestassa, and Mtiwa. These tribes have been lumped because I have such a small series of each, rather than because of any imagined physical identity, although their cultural identity may justify this.

The Inter-tribal mixtures include all individuals of pure Riffian extraction whose two parents originated in different tribes; that is, in tribes coming under different designations in the preceding list.

The Senhajan series is divided as follows:

Zarket	25	Ktama	22
Bu Nsar	25	Ar. Sen.	47
Hamid	18	Inter-tribal mixtures	1
Taghzuth	59	Total Senhaja	197

Under "Zarket" is included Zarket, Beni Gmil, and Beni Mesduy; with "Beni Bu Nsar" go Beni Seddath and Beni Khennus. In both cases the tribes so lumped together have a traditional basis for consideration as single groups. Under the "Arabophone Senhaja," abbreviated as Ar. Sen., I have committed the seemingly unpardonable crime of combining two groups which are not geographically contiguous. I have done this, however, because separate seriation shows them distinctly similar, and because separately they are too small. Other groups, unfortunately, have remained too small, because of their inability to be combined with neighboring groups.

It is apparent that I have seriated a number of tribal groups which are really too small to be considered as statistical units. Of my tribal groups, only five out of twenty contain more than fifty subjects. I am presenting the others, however, in the hope that they may show variations which cast light on the general problem, and am using them in statistical

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compilations of only the broadest sort, since to apply the ordinary niceties of statistical analysis to them would be an indulgence in the common statistical vice of specious accuracy.

The same objection might be made to the inclusion of the Sheshawen series of 28, but this group is so important and so homogenous that I believe I am justified in using it, especially since the total group which this sample represents includes only several hundred individuals.

The Arab series numbers 93 and the Shluh 257. The latter might have been tribally subdivided, as were the Riffians and Senhaja, were it the main subject of this volume. Since it, as well as the so-called Arab group, is included as comparative data, such division can await the time when the series has been expanded and is ripe for special treatment.

In the search for comparative data of a truly comparable nature, I have seriated three compilations of measurements taken by other investigators, and have borrowed a fourth group from a fellow worker. Randall-Mac Iver and Wilkin, in their volume *Libyan Notes*, include a series of 50 Kabyles and one of 57 Shawia, with all individual measurements and observations tabulated. I have taken the liberty of seriating all the measurements and calculating and seriating all indices which find parallels in the Riffian material. The care with which these investigators selected their men for tribal purity, and the accuracy with which they seem to have measured them, highly recommend their work. These two series form an invaluable source of comparative material both for myself and for other investigators in the field.

The third series consists of measurements and observations upon 33 Mesopotamian Bedawin, made by Robert Ehrich during the course of his archaeological work for the Harvard-Bagdad School Expedition to Kirkuk. Ehrich says that these Bedawin inhabit the borderland of Kurdish and Turcoman territories, and hence may be somewhat mixed, although he definitely excludes all persons with any recollection of such admixture. This series, which I have seriated, forms one of the few groups of Asiatic Arabs ever measured.[1] It constitutes the only available check, in all but four criteria, upon the so-called Arabs of North Africa. Hence I am very grateful to the collector for his kindness in permitting me to use his hitherto unpublished data.

The fourth series consists of a group of 79 Spaniards, students I believe, measured by Professor F. de las Barras de Aragon and seriated by Dr. George Williams, formerly of this Department, and at present of the staff of Washington University, St. Louis. I must thank both these gentlemen for their courtesy in permitting me to use the fruit of their combined labors. This group forms the only available series of Spaniards which includes the more modern statistical constants as well as a satisfactory number of criteria.

Besides these four series, all of which are in their present form new, I am employing for direct comparison the excellent series of 100 West African Negroes measured by Dr. Josef Weninger and prepared by Dr. Rudolf Pochs; and the military statistics compiled recently by Lundborg and Linders in Sweden, and by Bryn and Schreiner in Norway. These seven comparative groups will be compared tabularly with Moroccan groups under each measurement, with both mean differences and constants based on the probable error given. Mme. Alette Schreiner's three Norwegian provincial groups of Valle, Hålandsdal, and Eidfjord, as well as sub-groups from Lundborg and Linders and from Bryn and Schreiner,

[1] Martin gives the cephalic index of a Yemenitic group; Leys and Joyce give the statures, head lengths, head breadths, and cephalic indices of three Arab groups measured in East Africa — Muscat, Yemen, and Sheber.

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will be listed under each measurement but not given special consideration until the conclusion of the general discussions.

Other series have been drawn from Martin's *Lehrbuch der Anthropologie* and other compilations and original sources. In cases of original seriation hitherto unpublished, a dagger follows the name of the group; and in cases of indices calculated from means or means calculated from indices, an asterisk is the designation. Sources given in parentheses are secondary. The sources more commonly referred to are abbreviated in the tables, and the abbreviations explained in footnotes at each first occurrence.

In the comparative lists, only those groups will be used which bear a direct relationship to the problem. Owing to the presence of blondism in the Rif, Scandinavian, English, and Old American series will be used. Owing to the supposed identity of the Berber stock with the Mediterranean race, figures from southern Italy, Spain, and Portugal will be presented. The Negro series of Pochs will serve as a check upon the negroid elements in the different groups, and skeletal data from various sources will indicate their relationship to peoples of antiquity.

If the reader considers the data upon which this portion of the volume is based to be scanty, I beg his indulgence, giving as my only excuse the difficulties of governmental prohibitions, warfare, and environment under which the measurements were collected.

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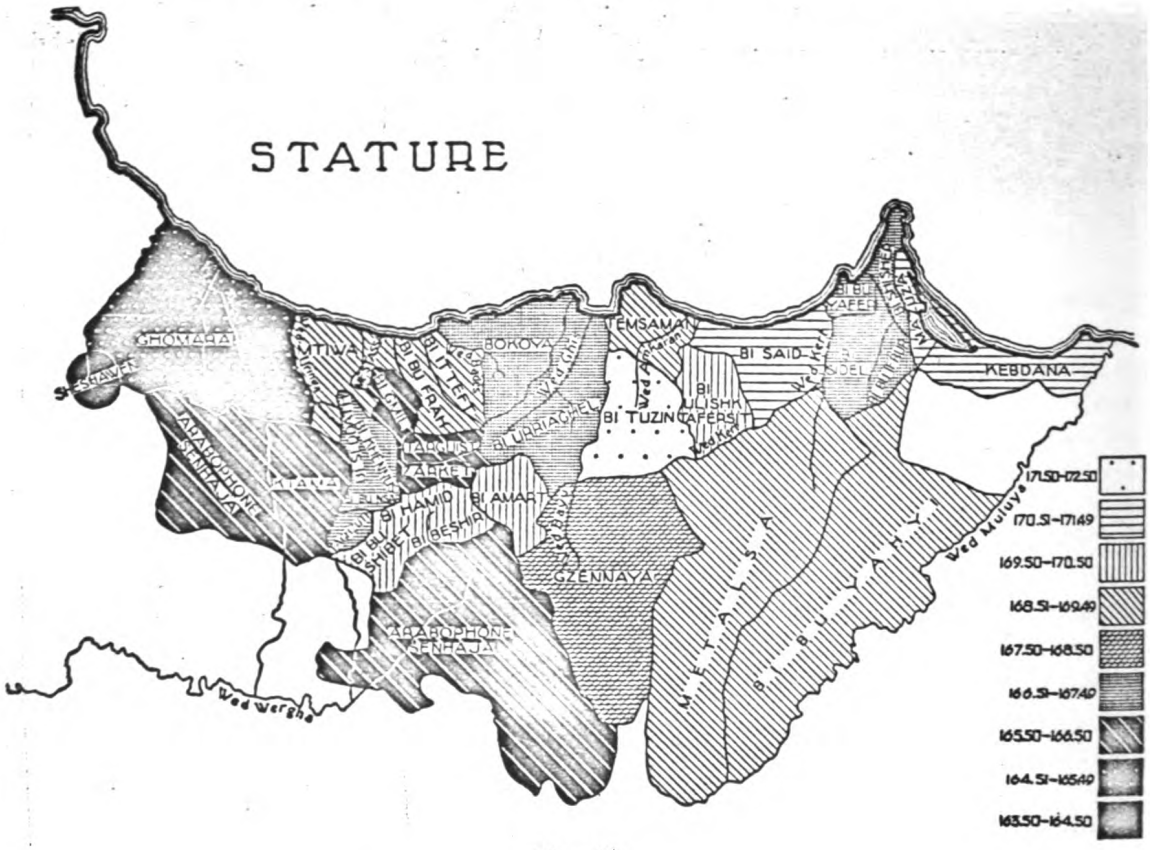
CHAPTER XVI

MEASUREMENTS AND INDICES OF THE BODY

STATURE

Stature, the measurement of the total length of the human body, while one of the most important and obvious of human dimensions, is at the same time one of the most liable to fluctuations caused by environmental caprice. It is dependent to a certain degree upon nutrition, and, as has recently been asserted,[1] upon other less material cultural stimuli. In



Map 25

the comparisons which follow, these facts must not be overlooked. In the present series, the Riffians are probably the best fed. The Senhajans in general approximate them in nutritional opportunity, with the exception of the people of Ktama, who live in a region in which food is difficult to obtain. The Ghomara attain in all probability the average amount of nutrition, and the Arabs of the plains are not as a rule underfed. The people of Sheshawen,

[1] Lundborg and Linders, *Racial Characters of the Swedish Nation*, pp. 61–62, 163–164; Hrdlička, *The Old Americans*, pp. 86–89.

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being burghers, eat rather heartily of fattening foods without taking exercise. The only major series included in the original data of this report which is definitely underfed is that of the Shluh. Individuals from the mountains and from the Sous who came to my house in Marrakesh to be measured were literally half starved and often more than half. Their condition makes them susceptible to many diseases, notably favus, which further pull them down, in health and probably in mean stature. Their semi-starvation is attributable to the breakdown of the Berber social and political systems in the Shluh country, and to the rise of greedy kaids, supported for political reasons by the government of the protectorate. In considering the accompanying tables we must remember that the Shluh may owe their inferior stature in part, though of course not wholly, to their miserable condition.

TABLE 1. STATURE

	No.	M.	σ	V.
Total Rif	529	168.62 ± .18	6.13 ± .18	3.66 ± .08
Total Senhaja	197	167.14 ± .28	5.59 ± .17	3.34 ± .10
Ghomara	73	165.21 ± .43	5.43 ± .32	3.29 ± .19
Sheshawen	28	164.04 ± .58	4.59 ± .41	2.80 ± .25
Arabs	93	167.98 ± .44	6.34 ± .31	3.77 ± .19
Shluh	277	165.44 ± .25	6.07 ± .17	3.67 ± .11
Kebdana		170.57 ± .93	5.18 ± .66	3.04 ± .39
Masuza		170.73 ± .59	4.82 ± .42	2.82 ± .25
Galiya		167.02 ± .49	5.33 ± .35	3.19 ± .21
Nomads		168.76 ± .76	6.09 ± .54	3.61 ± .32
Said		170.80 ± .81	6.61 ± .58	3.87 ± .34
Ulishk		170.38 ± .48	5.23 ± .34	3.07 ± .20
Temsaman		169.45 ± .65	6.79 ± .46	4.01 ± .27
Tuzin		171.53 ± .78	7.12 ± .55	4.15 ± .32
Gzennaya		167.51 ± .57	6.23 ± .40	3.72 ± .24
Urriaghel		166.59 ± .48	5.68 ± .34	3.41 ± .20
Amart		169.54 ± .90	6.29 ± .64	3.71 ± .38
Targuist		166.22 ± .81	5.09 ± .57	3.06 ± .34
Bokoya		166.62 ± .65	4.70 ± .46	2.82 ± .27
Maritimes		168.95 ± .82	5.72 ± .58	2.39 ± .34
Zarket		166.20 ± .69	5.09 ± .49	3.06 ± .29
Bu Nsar		167.32 ± .68	5.05 ± .48	3.02 ± .29
Hamid		170.34 ± .53	3.35 ± .38	1.97 ± .22
Taghsuth		167.49 ± .57	6.46 ± .40	3.86 ± .24
Ktama		166.09 ± .62	4.34 ± .44	2.61 ± .26
Ar. Sen		166.38 ± .52	5.31 ± .37	3.19 ± .22

COMPARATIVE DATA

North Africa	Authority	No.	M.	σ	V.
Mzabites	Amat	50	162.0		
Kabyles†	B. and C.[1]	361	165.93		
Algerian Arabs	d'Hercourt[2]	18	166.6		
Blond Kabyles	Viré	22	168.43		
Western Plateaux†	B. and C.	274	168.49		
Kabyles†	R.-Mac I. and W.[3]	50	168.56 ± .60	6.33 ± .43	3.78 ± .26
Shawia†	B. and C.	79	168.85		
Brunet Kabyles	Viré	43	169.76		
Kabyles	d'Hercourt	13	170.3		
Shawia†	R.-Mac I. and W.	51	170.51 ± .54	5.77 ± .39	3.38 ± .23
Shawia	Papillault	15	170.8		

[1] Bertholon and Chantre. [2] Gilbert d'Hercourt. [3] Randall-Mac Iver and Wilkin.

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Africa south of the Sahara	Authority	No.	M.	σ	V.
West Coast	Weninger	100	168.86 ± .44	6.57 ± .31	3.89 ± .19
Sudanese	B. and C.	202	168.96		
Ashanti	Deniker (M[1])		169.3		
Mandingo	Deniker (M)		170.0		
Asia					
Sheber	L. and J.[2]	31	161.57 ± .43	5.79 ± .30	
Yemen	L. and J.	20	164.77 ± .76	5.03 ± .58	
Muscat	L. and J.	82	164.85 ± .58	4.78 ± .41	
Irak Bedawin	Ehrich	33	171.28 ± .81	6.80 ± .57	3.97 ± .33
Europe					
Spain, indoor laborers	Oloriz (W[3])	67[7]	159.8		
Spain, Galicia	H. S. and A.[4] (W)	182	160.0		
Spain, outdoor laborers	Oloriz (W)	329	160.7		
Spain, lower professions	Oloriz (W)	295	161.1		
Sardinia	Livi	6,687	161.9		
Spanish, general	Oloriz (W)	6,072	162.0		
Spanish, general	H. S. and A. (W)	1,690	162.1		
Basilicata	Livi	5,976	162.6		
Calabria	Livi	13,336	163.1		
Sicily	Livi	32,824	163.5		
Puglia	Livi	16,546	163.5		
South Italians	Hrdlička	50	163.4		
Spain, Catalana	H. S. and A. (W)	182	163.6		
Spain, higher professions	Oloriz	497	163.9		
Spanish, general	Deniker	7,396	164.5		
Portuguese, general	Sant' Anna (H[5])	1,444	164.5		
Spain, Carcereños	Aranzadi (W)	20	165.00 ± .76		
Faroe Islands, 1889	Arbo (Hansen)	99	168.17		
Faroe Islands, 1912	Hansen	493	169.12	4.58	
Sweden, Vastmanlands län	L. and L.[6]		172.11 ± .15	5.75 ± .11	3.34
Sweden (total)[7]	L. and L.		172.23 ± .02	5.93 ± .01	3.44
Norway, Opland[7]	B. and S.[8]	739	172.30 ± .15	5.90	3.68
Norway (total)[7]	B. and S.	11,774	172.37 ± .04	5.88	3.41
Sweden, Sodermanlands län	L. and L.		172.49 ± .12	6.10 ± .09	3.54
Norway, Hålandsdal[7]	A. Schreiner	64	172.83 ± .41	4.88	2.83
Royal Engineers	(G.[9])		174.0		
Norway, Valle[7]	A. Schreiner	100	174.74 ± .37	5.49	3.14
Cambridge students	Macdonnell (G)	1,000	174.9		
Oxford students	Schuster (G)	959	176.50 ± .13		
Norway, Eidfjord[7]	A. Schreiner	22	176.86 ± .84	5.82	3.29
University College staff	Pearson (G)	25	177.8		

Swedish recruits	Authority	M.
1841–1845	Arbo (L and L)	167.36
1846–1850	"	167.40
1851–1855	"	167.81
1856–1860	"	168.06
1861–1865	"	168.53
1866–1870	"	169.60
1887–1890	L. and L., government statistics	169.2
1891–1895	"	169.6
1896–1900	"	170.1
1901–1905	"	170.8
1906–1910	"	171.6

[1] Martin. [2] Leys and Joyce. [3] George D. Williams.
[4] Hoyos Sains and Aranzadi. [5] Hooton. [6] Lundborg and Linders.
[7] In Lundborg and Linders', Bryn and Schreiner's, and Mme. Schreiner's material the standard errors given by these authors have been replaced throughout by probable errors newly calculated.
[8] Bryn and Schreiner. [9] Goring.

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	Authority	M.
1911–1915	L. and L., government statistics	172.0
1916–1920	"	171.7
1921–1922	"	171.9
Most recent (published 1926)	L. and L.	172.23 ± .03

Norwegian recruits	Ages	Authority	No.	M.
1878–1887	22	Arbo (B & S)		168.8
1888–1897	22	"		169.3
1898–1902	22	Schreiner	67,398	170.39
1903–1907	22	"	64,668	170.79
1908–1912	22	"	76,778	171.15
1913–1917	20, 21, 22	"	118,726	171.31
1918–1922	20	"	111,667	171.46
1923–1925	20	"	68,683	171.81

Calculated from Skeletal Material

	Authority	M.
Neolithic, France and Belgium	Pearson (H)	162.54
Neolithic, Mureaux	Pearson (H)	163.39
Dolmens, Caucasus	Pearson (H)	164.54
Guanches of Teneriffe, II	Hooton	164.54
Romano-Gauls	Pearson (H)	164.82
Algerian Dolmans	Pearson (H)	165.5
Guanches of Teneriffe, I	Hooton	166.08
Canarians, II	Hooton	166.18
Franks	Pearson (H)	166.42
Romano-British	Pearson (H)	166.7
Canarians, I	Hooton	166.77
Neolithic Britons	Pearson (H)	167.3
Naqada Egyptians	Pearson (H)	167.5
Bajuvars from graverows	Pearson (H)	169.2
Anglo-Saxons	Pearson (H)	170.9

DIFFERENCES BETWEEN MEANS, IN CENTIMETERS

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Norway	Sweden
Rif	--	..	..	..	..	..	.06	1.89	2.66	.24	3.75	3.61
Senhaja	1.48	--	..	..	..	..	1.42	3.37	4.14	1.72	5.23	5.09
Ghomara	3.41	1.93	--	..	..	..	3.35	5.30	6.07	3.65	7.16	7.02
Sheshawen	4.58	3.10	1.17	--	..	..	4.52	6.47	7.24	4.82	8.33	8.19
Arabs	.64	.84	2.77	3.94	--	..	.58	2.53	3.30	.88	4.39	4.25
Shluh	3.18	1.70	.23	1.40	2.54	--	3.12	5.07	5.84	3.42	6.93	6.79

DIFFERENCE OF MEANS EQUALS X TIMES P.E.

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Norway	Sweden
Rif	--	..	..	..	..	..	.10	3.32	3.20	.50	20.82	20.06
Senhaja	4.48	--	..	..	..	..	2.15	5.51	4.81	3.31	18.67	18.18
Ghomara	7.26	3.78	--	..	..	..	4.53	7.68	6.60	5.89	16.65	16.32
Sheshawen	7.51	4.84	1.62	--	..	..	5.45	8.19	7.39	6.60	14.36	14.12
Arabs	1.33	1.62	4.43	5.40	--	..	.78	3.62	3.59	.14	9.98	9.63
Shluh	10.26	4.47	.46	2.22	4.98	--	4.80	8.59	6.87	6.71	27.68	27.16

Turning for comparison to peoples living under other régimes, we find that in Sweden and Norway, to a lesser extent in some other European countries, and in England and America, a strange phenomenon has transpired within the last century. The accompanying

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tables dealing with the stature of recruits in Sweden from 1841 to the present show a steady and significant increase. The same is true of the Norwegian figures. The data on the difference of ages in Sweden would indicate that this change has been effected despite these differences, rather than as a result of them.

Hrdlička's data (which I have not repeated here) on Old American and British groups, as well as upon other Europeans, shows a similar trend. Both Hrdlička and the Scandinavian authorities feel that this change is a result of modern living, in Scandinavia being due to the increase in transportation facilities leading to a breakdown of local endogamy and the opportunities for a more varied diet, as well as perhaps to increased sanitation. The mental stimulation of the modern period is also given its share of credit. Hrdlička believes that in America it is due to the same stimuli, plus the healthy outdoor life of our ancestors, with the possibility of an environmental touch.

At any rate, whatever the mechanism and cause, during the last century the statures of those peoples who have been most affected by modern civilization have notably increased; especially among the peoples of dominantly Nordic blood. Comparison with figures derived from the skeletal remains of presumably Nordic peoples of the time of the breakdown of the Roman Empire show the same average stature as did the Scandinavians and English of the early nineteenth century. Therefore we presume that Nordic stature remained constant during the intervening period.

Data from the Mediterranean countries of Europe do not cover enough years to indicate whether or not such changes have transpired in them, but if such a change be commensurate with recent cultural advance, some increase is to be expected. The Spanish figures, varying between 161 and 165 centimeters, may indicate such a condition.

If we are to compare the Moroccan groups with Europeans and Americans we must consider that no such change can have taken place in the former if the change in the latter is due to the causes attributed. The manner of living of the Riffians, as well as of the other groups, had not changed to any perceptible degree from early historic times to the time of European conquest, and the latter event, in most of the regions in which I measured, was either unaccomplished or recently brought about.

Hence we must compare our Riffian and other Moroccan groups to the earlier measurements of the Europeans, and to the skeletal series, if we are to strike a true comparison. In comparing the Riffians with the Algerian groups we must likewise remember that many of the subjects in the latter country were probably born under French domination, and this political influence has brought about better transportation and probably a degree of mobility, although probably not a great change in diet.

Comparing our series with the modern Europeans, we find the latter, by which we mean the Scandinavians, Britons, and Americans, to exceed all of our groups in considerable degree. The Riffians, being the tallest, come the closest. If we try to deduce a generalized old North European mean from the earlier data and from the skeletal calculations, we find a range of means extending from 164 to 170, and centering about 167 or 168. This roughly estimated figure falls in with the taller of our Moroccan groups, the Riffians, Senhaja, and Arabs. It still exceeds, however, the Ghomara, Shluh, and people of Sheshawen.

Comparison with the Spaniards, Portuguese, and Italians, whether measured recently or not, shows a considerable excess in favor of the three Moroccan groups which approximate the North European mean.

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Of the other three, the Sheshawen group shows an interesting similarity to the modern Spaniards, and neither the Shluh nor the Ghomara exceed them greatly.

Extending the comparison to the Algerian and Tunisian peoples, we find that the Moroccans in general are not as tall as the latter. The Kabyles and Shawia of Randall-Mac Iver and Wilkin are both much taller, although Bertholon and Chantre's data indicate that in parts of Kabylia, which the former investigators may not have included, populations of short stature are to be found. According to Bertholon and Chantre, and evident from their map, the shorter peoples of eastern Barbary are marginal in distribution, being located along the coast, in the Island of Gerba, and in the oases. The taller peoples occupy the central plateaux and plains and the more arid regions. The deduction of these authors is that the shorter people are the older, and the taller, typically nomadic groups are more recent. In other words, if we accept for the moment the idea that successive or continuous waves of Hamitic origin have influenced North Africa, we are forced to conclude from this evidence that the shorter people represent the non-Hamitic and perhaps more European strain, and that the taller people, of Hamitic origin, are continually working by their infiltrations and invasions to bring the stature to the high level of other mixed Hamitic groups south of and in the Sahara.

The distribution map of stature among the Riffian and Senhajan tribes, and in the Ghomara, shows a definite trend from east to west, with the stature higher in the east and decreasing as one nears the Pillars of Hercules. If one could join Bertholon and Chantre's map with ours, the results might be interesting. The tallest tribe in the Rif is that of the Beni Tuzin, the apex of the Zenatan invasion. In general, the area affected by the Zenata seems taller than the purer Riffian region, and the latter in turn taller than the Ghomara and much of the Senhaja. Whether the intermediate stature of the Central Riffians, approximating as it does to North European means, implies an intermediate stage of mixture between eastern talls and western shorts, or whether it is an old condition without relation to its neighbors' statures, cannot be determined from a study of this measurement alone. The high stature of the eastern tribes previously mentioned may agree with that of the Braber tribes, which are of Senhajan origin, as well as with the Zenata. Personal observation at present incapable of proof ascribes a higher mean stature to the Braber than to the Riffians as a whole. Since the east lies in an invasion path it may well contain non-Riffian elements earlier than, as well as, Zenatan.

The Mesopotamian Bedawin available for comparison are much taller than any of the Moroccan groups, and the southern Arabs, measured in East Africa, considerably shorter, being comparable to Sheshawen and the Shluh. The Bedawin resemble, in stature, the Algerian Berbers far more than they do any Moroccan groups. The Sheshawen group appears intermediate between Yemenites and Spaniards in stature.

The West Coast Negroes chosen for comparison show a stature nearly identical with those of Riffians, Senhaja, and Arabs. Stature among Negroes, however, is so variable that in determining the degree of Negro blood in Moroccan groups, we must rely upon other measurements and observations.

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SPAN AND STATURE–SPAN INDEX

According to the lists given by Hrdlička and Martin, the span of each continent seems to have about the same range, from 99 to 108.

Also it is difficult to compare span measurements. The Swedes obtain a span of 196, by measuring arm length and adding it to biacromial. This is not what they would have obtained had they measured it separately. Similarly Bertholon and Chantre obtain some very short spans, giving abnormally, if not impossibly, low indices. The indices of d'Hercourt are as great as the Moroccan ones. Those of Randall-Mac Iver and Wilkin, while still lower than the Moroccan ones, are yet possible. They seem to approximate the figures chosen by Hrdlička to represent this group, by whom measured I do not know. All of this indicates that we must be very careful of our comparative data in this measurement and index, to be sure the techniques are comparable.

Accepting what we have, however, the Riffians seem in general to exceed the Kabyles and Shawia, if we accept Bertholon and Chantre or Randall-Mac Iver and Wilkin. If we accept d'Hercourt's small series we find a great similarity between the two. The Mzabites of Amat exceed all our Moroccan groups, and Bertholon and Chantre's series of Western Plateaux tribes in Algeria come very close to the Moroccan figures.

The Sudanese series of the two French investigators are close to our Moroccan index, while that of the West Coast Negroes exceeds them greatly. The latter is probably the truer Negro condition. Curiously enough, a series of Esthonians quoted by both Martin and Hrdlička equals that of these Negroes. Too much racial significance must not be placed on this until one is certain of the techniques employed.

The Riffians exceed the Spaniards, in the only series available, and the Old Americans as well. Hrdlička explains the low figure of the latter by saying that a selected group was employed, including no manual laborers. In regard to the Norwegians, who approximate the general European span, their total series falls less than one unit point below that of the Riffians, and their most dolichocephalic province, Opland, presents an index almost identical with that of the Rif.

TABLE 2. SPAN

	No.	M.	σ	V.
Total Rif	525	175.41 ± .23	7.74 ± .16	4.41 ± .09
Total Senhaja	193	174.53 ± .37	7.44 ± .22	4.26 ± .13
Ghomara	73	172.41 ± .58	7.37 ± .43	4.27 ± .25
Sheshawen	28	172.11 ± .80	6.24 ± .56	3.63 ± .33
Arabs	93	174.69 ± .55	7.65 ± .39	4.38 ± .22
Shluh	272	172.57 ± .30	7.34 ± .21	4.25 ± .33

COMPARATIVE DATA

North Africa	Authority	No.	M.	σ	V.
Kabyles †	B. and C.	170	165.12		
Shawia †	B. and C.	13	165.46		
Kabyles †	R.-Mac I. and W.	50	171.30 ± .30	7.61 ± .51	4.44 ± .30
Mzabites	Amat	50	171.9		
Western Plateaux †	B. and C.	51	173.94		
Shawia †	R.-Mac I. and W.	51	175.33 ± .65	7.36 ± .46	4.20 ± .26
Algerian Arabs	d'Hercourt	18	175.5		
Kabyles	d'Hercourt	13	177.9		

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Africa south of the Sahara	Authority	No.	M.	σ	V.
Sudanese	B. and C.	168	175.15 or 175.35 [1]		
West Coast	Weninger	100	182.45 ± .58	8.60 ± .41	4.71 ± .22
Europe					
Carcereños	Aranzadi	20	168.88 ± .41		
Norway (total)	B. and S.	11,723	178.47 ± .05	7.00	3.93
Old Americans	Hrdlička	245	179.2		
Opland	B. and S.	739	179.25 ± .18	7.36	4.11

[1] On page 47 of Bertholon and Chantre's book the Hausa span is given twice, once as 177, and once as 179. I have calculated the mean span twice, with the Hausa rendered each way. The Baghermi mean is not given.

DIFFERENCES BETWEEN MEANS, IN CENTIMETERS

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Norway	Sweden
Rif	--	..	..	..	..	..	4.11	.08	..	7.04	3.06	..
Senhaja	.88	--	..	..	..	..	3.23	.80	..	7.92	3.94	..
Ghomara	3.00	2.12	--	..	..	..	1.11	2.92	..	10.04	6.05	..
Sheshawen	3.30	2.42	.30	--	..	..	.81	3.22	..	10.34	6.36	..
Arabs	.72	.16	2.28	2.58	--	..	3.39	.64	..	7.76	3.78	..
Shluh	2.84	1.96	.16	.46	2.12	--	1.27	2.76	..	9.88	5.90	..

DIFFERENCE OF MEANS EQUALS X TIMES P.E.

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Norway	Sweden
Rif	--	..	..	..	..	..	10.82	.12	..	11.35	12.74	..
Senhaja	2.00	--	..	..	..	..	6.73	1.07	..	11.47	10.65	..
Ghomara	4.84	3.07	--	..	..	..	1.71	3.36	..	12.25	10.43	..
Sheshawen	3.98	2.75	.30	--	..	..	.95	3.13	..	11.12	7.95	..
Arabs	1.20	.24	2.89	2.66	--	..	5.38	.75	..	9.70	6.88	..
Shluh	7.48	4.17	.25	.54	3.37	--	3.02	3.83	..	15.20	19.03	..

TABLE 3. STATURE-SPAN INDEX

	No.	M.	σ	V.
Total Rif	524	104.10 ± .07	2.50 ± .05	2.40 ± .05
Total Senhaja	193	104.22 ± .19	2.53 ± .09	2.43 ± .08
Ghomara	73	104.22 ± .18	2.62 ± .15	2.51 ± .14
Sheshawen	28	105.18 ± .32	2.49 ± .22	2.37 ± .21
Arabs	86	104.02 ± .18	2.45 ± .13	2.35 ± .13
Shluh	272	104.37 ± .15	2.57 ± .07	2.46 ± .07

COMPARATIVE DATA [1]

North Africa	Authority	No.	M.	σ	V.
Shawia *	B. and C.	13	92.07		
Kabyles*	B. and C.	170	99.51		
Kabyles †	R.-Mac I. and W.	50	101.94 ± .26	2.75 ± .19	2.69 ± .18
Shawia †	R.-Mac I. and W.	51	102.37 ± .29	3.17 ± .21	3.05 ± .20
Western Plateaux *	B. and C.	51	103.23		
Kabyles	d'Hercourt	13	104.46		
Shawia	d'Hercourt	18	105.34		
Mzabites	Amat	50	106.1		
Africa south of the Sahara					
Sudanese	B. and C.	168	104.10 or 104.16 [1]		
West Coast	Weninger	100	108.03 ± .19	2.86 ± .14	2.65 ± .13

[1] To obtain the mean stature-span index of this group it was necessary to omit the stature of the Baghermi, whose span is not given, recalculate the stature of the group, and divide it into each of the possible mean spans (see footnote, above). Thus one of the two stature-span indices given is right, in so far as the raw data is correct.

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Europe	Authority	No.	M.	σ	V.
Carcereños *	Aranzadi	20	102.30		
Old Americans	Hrdlička	245	102.6		
Norway (total)	B. and S.	11,723	103.35 ± .02	2.45	2.37
Opland	B. and S.	738	104.23 ± .07	2.63	2.53

DIFFERENCES BETWEEN MEANS, IN INDEX POINTS

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Norway	Sweden
Rif	--	..	..	..	..	..	2.16	1.73	..	3.93	.75	..
Senhaja	.12	--	..	..	..	..	2.28	1.85	..	3.71	.87	..
Ghomara	.12	.00	--	..	..	..	2.28	1.85	..	3.71	.87	..
Sheshawen	1.08	.96	.96	--	..	..	3.24	2.81	..	2.85	1.83	..
Arabs	.08	.20	.20	1.16	--	..	2.08	1.65	..	4.01	.67	..
Shluh	.27	.15	.15	.81	.35	--	2.43	2.00	..	3.66	1.02	..

DIFFERENCE OF MEANS EQUALS X TIMES P.E.

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Norway	Sweden
Rif	--	..	..	..	..	..	8.00	5.77	..	19.65	10.72	..
Senhaja	.60	--	..	..	..	..	7.13	5.29	..	13.75	4.58	..
Ghomara	.63	.00	--	..	..	..	7.13	5.44	..	14.27	4.83	..
Sheshawen	3.18	2.59	2.59	--	..	..	7.91	6.53	..	7.70	5.72	..
Arabs	.42	.77	.80	3.14	--	..	6.50	4.85	..	15.42	3.72	..
Shluh	1.59	.62	.60	2.31	1.52	--	8.10	6.06	..	15.25	6.80	..

ACROMION HEIGHT AND RELATIVE SHOULDER HEIGHT

Although the measurement of the height of the acromion is chiefly of value only as a component element of the shoulder height index, it may perhaps be of some use in indicating the height of the legs and trunk, unaffected by the length of the neck and height of the head.

Our measurements lump roughly into two major groups, that of the Riffians, Senhaja, and Arabs, and that of the Ghomara and Shluh, with Sheshawen trailing behind. The only difference in order between this dimension and stature is that in the acromion height the Ghomara exceed the Shluh, whereas in stature the opposite is the case.

TABLE 4. ACROMION HEIGHT

	No.	M.	σ	V.
Total Rif	529	137.96 ± .17	7.74 ± .16	4.41 ± .09
Total Senhaja	196	137.25 ± .27	5.31 ± .16	3.87 ± .12
Ghomara	73	135.88 ± .40	4.99 ± .28	3.67 ± .21
Sheshawen	28	134.11 ± .45	3.53 ± .32	2.63 ± .24
Arabs	93	137.78 ± .40	5.69 ± .28	4.13 ± .20
Shluh	277	135.36 ± .22	5.53 ± .16	4.09 ± .12

COMPARATIVE DATA

North Africa	Authority	No.	M.	σ	V.
Mzabites	Amat	50	134.4		
Algerian Arabs	d'Hercourt	18	137.4		
Kabyles †	R.-Mac I. and W.	50	138.48 ± .63	6.54 ± .44	4.72 ± .32
Shawia †	R.-Mac I. and W.	51	140.02 ± .45	4.80 ± .34	3.43 ± .23
Asia					
Irak Bedawin †	Ehrich	32	142.56 ± .80	6.73 ± .56	4.72 ± .40
Europe					
Carcereños	Aranzadi (W)	23	135.56		

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DIFFERENCES BETWEEN MEANS, IN CENTIMETERS

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Norway	Sweden
Rif	--	..	..	..	..	..	.52	2.06	4.60	..	..	..
Senhaja...	.71	--	..	..	..	..	1.24	2.77	5.31	..	..	..
Ghomara .	2.08	1.37	--	..	..	..	2.60	4.14	6.68	..	..	..
Sheshawen	3.85	3.14	1.77	--	..	..	4.37	5.91	8.45	..	..	..
Arabs	.18	.53	1.90	3.67	--	..	.70	2.24	4.78	..	..	..
Shluh	2.60	1.89	.52	1.25	2.42	--	3.12	4.68	7.20	..	..	..

DIFFERENCE OF MEANS EQUALS X TIMES P.E.

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Norway	Sweden
Rif	--	..	..	..	..	..	.80	4.29	5.61	..	..	..
Senhaja...	2.22	--	..	..	..	..	1.80	5.23	6.33	..	..	..
Ghomara .	8.96	2.86	--	..	..	..	3.47	6.90	7.51	..	..	..
Sheshawen	8.02	5.98	2.95	--	..	..	5.68	9.24	9.19	..	..	..
Arabs	.42	1.10	3.36	6.12	--	..	.93	3.73	5.37	..	..	..
Shluh	9.29	5.40	1.13	2.50	5.26	--	4.66	9.55	8.68	..	..	..

TABLE 5. RELATIVE SHOULDER HEIGHT

	No.	M.	σ	V.
Total Rif	529	82.13 ± .03	1.12 ± .02	1.36 ± .03
Total Senhaja	194	82.11 ± .06	1.18 ± .04	1.45 ± .07
Ghomara	73	82.31 ± .09	1.13 ± .06	1.37 ± .08
Sheshawen	28	81.89 ± .14	1.14 ± .10	1.39 ± .12
Arabs	93	82.03 ± .08	1.21 ± .06	1.47 ± .07
Shluh	277	81.80 ± .06	1.47 ± .04	1.80 ± .05
Kebdana		82.22 ± .16	.87 ± .11	1.05 ± .13
Mazuza		81.93 ± .13	1.03 ± .09	1.26 ± .11
Galiya		82.26 ± .10	1.05 ± .07	1.28 ± .08
Nomads		81.86 ± .13	1.04 ± .09	1.27 ± .11
Said		82.40 ± .14	1.11 ± .10	1.35 ± .12
Uliahk		82.26 ± .09	.93 ± .06	1.13 ± .07
Temsaman		82.06 ± .14	1.41 ± .23	1.72 ± .12
Tuzin		82.02 ± .14	1.28 ± .23	1.56 ± .28
Gzennaya		82.33 ± .09	.95 ± .06	1.15 ± .07
Urriaghel		81.75 ± .10	1.13 ± .07	1.38 ± .08
Amart		82.18 ± .11	.78 ± .08	.95 ± .10
Targuist		82.28 ± .16	.99 ± .11	1.20 ± .13
Bokoya		81.38 ± .15	1.07 ± .10	1.32 ± .13
Maritimes		82.32 ± .12	.87 ± .09	1.06 ± .11
Zarket		82.29 ± .14	1.02 ± .10	1.24 ± .12
Bu Nsar		81.96 ± .11	1.40 ± .13	1.71 ± .16
Hamid		82.06 ± .24	1.51 ± .17	1.84 ± .21
Taghsuth		81.97 ± .08	.95 ± .06	1.16 ± .07
Ktama		81.95 ± .16	1.15 ± .12	1.40 ± .14
Ar. Sen		82.44 ± .12	1.19 ± .84	1.44 ± .10

COMPARATIVE DATA

North Africa	Authority	No.	M.	σ	V.
Algerian Arabs *	d'Hercourt	18	81.87		
Shawia †	R.-Mac I. and W.	51	82.03 ± .22	2.26 ± .15	2.75 ± .18
Kabyles †	R.-Mac I. and W.	50	82.18 ± .13	1.34 ± .09	1.63 ± .11
Mzabites *	Amat	50	82.96		

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	Authority	No.	M.	σ	V.
Asia					
Irak Bedawin †	Ehrich	32	83.03 ± .33	1.78 ± .15	2.14 ± .18
Europe					
Carcereños *	Aranzadi (W)	23	81.55		

DIFFERENCES BETWEEN MEANS, IN INDEX POINTS

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Norway	Sweden
Rif	--	..	..	..	..	..	.05	.11	.90	..	..	..
Senhaja	.02	--	..	..	..	..	.07	.09	.92	..	..	..
Ghomara	.18	.20	--	..	..	..	.13	.29	.72	..	..	..
Sheshawen	.24	.22	.42	--	..	..	.29	.13	1.14	..	..	..
Arabs	.10	.09	.28	.14	--	..	.15	.01	1.00	..	..	..
Shluh	.33	.31	.51	.09	.23	--	.38	.22	1.23	..	..	..

DIFFERENCE OF MEANS EQUALS X TIMES P.E.

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Norway	Sweden
Rif	--	..	..	..	..	..	.38	.50	2.73	..	..	..
Senhaja	.30	--	..	..	..	..	.50	.39	2.79	..	..	..
Ghomara	1.90	1.85	--	..	..	..	.81	1.21	2.12	..	..	..
Sheshawen	1.68	1.44	2.53	--	..	..	1.53	.50	3.17	..	..	..
Arabs	1.18	.90	2.33	.87	--	..	1.00	.04	2.94	..	..	..
Shluh	4.92	3.65	4.72	.59	2.30	--	2.71	.96	3.62	..	..	..

Turning to the index, we find the greatest difference between the Shluh and Ghomara, and the greatest similarity between the Rif and the Senhaja. The Ghomara are the highest shouldered group, and the Shluh the lowest, with the others graded between. Differences are significant only between the Shluh and other groups, and the Ghomara and other groups.

Comparing our six series with the three comparable groups of Kabyles, Shawia, and Irak Bedawin, we find no significant differences between either of the first two and any of our groups, excepting that between the Kabyles and the Shluh. There seems to be a consistent difference between our groups and the higher shouldered Irak Bedawin.

The small Spanish series available for comparison shows no great difference, but being slightly higher than any of the Moroccan groups comes closest to the Ghomara.

Within the tribes of the Rif and Senhaja, there is seen to be no marked regional distribution of this index.

SITTING HEIGHT AND RELATIVE SITTING HEIGHT

Absolute sitting height, although subordinate in general recognition to the index derived from its relation to stature, may yet be of importance as a separate factor or combination of factors forming part of the hereditary makeup of stature.

Looking first at our six Moroccan groups, we see that there is less difference in sitting height than in stature, hence the difference in the latter is partly due to a discrepancy in leg length. The Arabs, shorter than the Riffians, exceed them in sitting height, and the Sheshawen series, shorter than the Shluh or Ghomara, exceed both in sitting height. The field falls into two general groups; the Rif, Senhaja, Sheshawen, and Arabs in the first; and the Ghomara and Shluh in the second. There is no significant difference between any two of the former nor between the two latter; whereas between any two of different groups there is a difference of over five times the probable error or more.

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Turning to our comparative data, we find all of our series considerably exceeded in all cases except that of the small Spanish group. There is a highly significant difference between each of the groups compared statistically and each of the original six.

TABLE 6. SITTING HEIGHT

	No.	M.	σ	V.
Total Rif	529	85.35 ± .11	3.72 ± .08	4.36 ± .09
Total Senhaja	196	85.22 ± .17	3.31 ± .10	3.88 ± .12
Ghomara	73	83.41 ± .27	3.37 ± .20	4.04 ± .24
Sheshawen	28	84.96 ± .21	2.75 ± .15	3.24 ± .16
Arabs	93	85.50 ± .27	3.93 ± .19	4.60 ± .23
Shluh	277	83.53 ± .15	3.68 ± .11	4.41 ± .13

COMPARATIVE DATA

	Authority	No.	M.	σ	V.
North Africa					
Shawia †	R.-Mac I. and W.	51	88.37 ± .29	3.08 ± .21	3.49 ± .23
Kabyles †	R.-Mac I. and W.	50	91.02 ± .38	4.04 ± .27	4.44 ± .30
Asia					
Irak Bedawin †	Ehrich	32	90.22 ± .46	3.84 ± .32	4.26 ± .36
Europe					
Carcereños	Aranzadi (W)	23	84.2		
Norway (total)	B. and S.	11,779	91.65 ± .02	3.10	3.38
Old Americans	Hrdlička	727	91.8		

DIFFERENCES BETWEEN MEANS, IN CENTIMETERS

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Norway	Sweden
Rif	--	..	..	..	..	..	5.67	3.02	4.87	..	6.30	..
Senhaja	.13	--	..	..	..	..	5.80	3.15	5.00	..	6.43	..
Ghomara	1.94	1.81	--	..	..	..	7.61	4.96	6.81	..	8.24	..
Sheshawen	.39	.26	1.54	--	..	..	6.06	3.41	5.26	..	6.69	..
Arabs	.15	.28	1.09	.54	--	..	5.52	2.87	4.72	..	6.15	..
Shluh	1.82	1.69	.12	1.43	1.97	--	7.49	4.83	6.69	..	8.13	..

DIFFERENCE OF MEANS EQUALS X TIMES P.E.

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Norway	Sweden
Rif	--	..	..	..	..	..	14.54	9.74	10.15	..	57.27	..
Senhaja	.65	--	..	..	..	..	13.81	9.55	10.20	..	37.82	..
Ghomara	6.69	5.66	--	..	..	..	16.55	12.40	12.85	..	30.52	..
Sheshawen	1.62	.96	4.53	--	..	..	14.09	9.47	10.32	..	31.86	..
Arabs	.52	.87	7.27	1.59	--	..	12.05	7.18	8.91	..	22.78	..
Shluh	9.87	6.96	.39	5.50	6.36	--	18.27	15.09	13.93	..	54.20	..

TABLE 7. RELATIVE SITTING HEIGHT

	No.	M.	σ	V.
Total Rif	529	50.94 ± .05	1.66 ± .03	3.26 ± .07
Total Senhaja	194	50.96 ± .09	1.73 ± .05	3.40 ± .10
Ghomara	73	50.51 ± .12	1.49 ± .09	2.95 ± .17
Sheshawen	28	52.00 ± .15	1.46 ± .11	2.81 ± .15
Arabs	93	50.88 ± .11	1.54 ± .08	3.03 ± .15
Shluh	277	50.52 ± .07	1.81 ± .05	3.58 ± .10
Kebdana		51.57 ± .36	1.99 ± .25	3.86 ± .49
Mazuza		51.90 ± .19	1.54 ± .13	2.97 ± .26
Galiya		50.94 ± .15	1.64 ± .11	3.22 ± .21
Nomads		51.31 ± .14	1.11 ± .10	2.16 ± .19
Said		50.77 ± .21	1.71 ± .15	3.37 ± .29

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	M.	σ	V.
Ulishk	50.51 ± .14	1.52 ± .10	3.01 ± .20
Temsaman	50.82 ± .17	1.72 ± .12	3.38 ± .23
Tusin	50.39 ± .17	1.58 ± .12	3.14 ± .24
Gzennaya	50.83 ± .15	1.67 ± .11	3.28 ± .21
Urriaghel	51.24 ± .14	1.61 ± .10	3.14 ± .19
Amart	50.91 ± .24	1.70 ± .17	3.34 ± .34
Targuist	50.44 ± .26	1.61 ± .18	3.19 ± .36
Bokoya	51.00 ± .21	1.50 ± .15	2.94 ± .29
Maritimes	50.91 ± .22	1.53 ± .16	3.01 ± .31
Zarket	50.12 ± .19	1.42 ± .14	2.83 ± .27
Bu Nsar	50.52 ± .25	1.86 ± .18	3.68 ± .35
Hamid	51.24 ± .27	1.66 ± .19	3.24 ± .38
Taghzuth	51.71 ± .14	1.60 ± .09	3.09 ± .19
Ktama	49.95 ± .24	1.64 ± .17	3.28 ± .33
Ar. Sen	51.28 ± .15	1.53 ± .11	2.98 ± .21

Comparative Data

North Africa	Authority	No.	M.	σ	V.
Shawia †	R.-Mac I. and W.	51	51.88 ± .15	1.64 ± .11	3.16 ± .21
Kabyles †	R.-Mac I. and W.	50	52.80 ± .16	1.65 ± .11	3.12 ± .21
Africa south of the Sahara					
Central Africans	Bean (Hrdlička)	226	47.4		
Masai	Martin		48.9		
Somali	Martin		51.0		
Fan	Martin		51.3		
Togo	Martin		51.9		
Duala	Martin		52.2		
Kagoro	Martin		53.8		
Babinga	Martin		54.0		
Asia					
Irak Bedawin †	Ehrich	32	52.47 ± .26	2.19 ± .18	4.17 ± .35
Europe					
Carcereños *	Aranzadi (W)	23	51.03		
Italy	(Hrdlička)	3,506	53.13		
Trondelagen	(L & L)		49.7		
Iceland	(L & L)		50.9		
Sweden	L. and L.		52.3		
Norway (total)	B. and S.	11,779	53.18 ± .01	1.38	2.59
Old Americans	Hrdlička	711	52.63		

Differences between Means, in Index Points

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Norway	Sweden
Rif	– –	..	..	..	..	..	1.86	.94	1.53	..	2.24	..
Senhaja	.02	– –	..	..	..	..	1.84	.92	1.51	..	2.22	..
Ghomara	.43	.55	– –	..	..	..	2.29	1.37	1.96	..	2.67	..
Sheshawen	1.06	1.04	1.49	– –	..	..	.80	.12	.47	..	1.18	..
Arabs	.06	.08	.37	1.12	– –	..	1.92	1.00	1.59	..	2.30	..
Shluh	.42	.44	.01	1.48	.36	– –	2.28	1.36	1.95	..	2.66	..

Difference of Means equals X times P.E.

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Norway	Sweden
Rif	– –	..	..	..	..	..	10.94	5.87	6.65	..	44.80	..
Senhaja	.20	– –	..	..	..	..	10.22	5.41	6.29	..	24.67	..
Ghomara	3.31	3.67	– –	..	..	..	11.45	7.21	7.84	..	13.92	..
Sheshawen	6.62	6.12	7.84	– –	..	..	3.64	.57	1.74	..	7.87	..
Arabs	.50	.57	2.31	5.90	– –	..	10.10	5.26	6.36	..	20.91	..
Shluh	4.67	4.00	.07	8.70	2.77	– –	13.41	8.00	8.48	..	38.00	..

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The most notable difference in the index, however, is that between the Sheshawen and the Shluh, representing the long and short trunked extremes, or the short and long legged extremes, whichever way one chooses to interpret it. The Rif, Senhaja, and Arabs are mutually comparable and mutually exclude the other three; Sheshawen is significantly different from all the other five; and the Shluh and Ghomara are mutually comparable and mutually exclude the other four. Thus there are three groupings, well differentiated: a relatively long trunked group, Sheshawen; three of intermediate length, the Rif, Senhaja, and Arabs; and two short trunked groups, the Ghomara and Shluh.

The Kabyles and Shawia available for comparison exceed all our groups, with the exception of Sheshawen, to a significant degree. The comparability of the Shawia with Sheshawen is perhaps due to the small size of the latter series, but of the six Moroccan groups Sheshawen does actually approximate it most closely.

Ehrich's Arabs likewise exceed all Moroccan groups, but not as much as do the Algerians.

Turning to Negro Africa, the common idea that Negroes are relatively short trunked is not entirely substantiated by the available material. Indications are, however, that a relatively short trunk implies Hamitic mixture, and that a relatively long trunk is more characteristic of the purer Negroes west and south of the area affected by Hamites. Pigmy influence, may, however, tend to accentuate the latter condition. Thus if negroid admixture, without concomitant Hamitic admixture, were to influence the Moroccan groups it might increase the relative sitting height, whereas if accompanied by Hamitic admixture it would probably lower it.

Of European groups, the Icelanders and Spaniards appear most similar. The Riffians, and the other groups as well, are thus most comparable to the most primitive of the Scandinavian groups as well as to the only Mediterranean series presented. It is interesting to note that the older series of Norwegians given falls even lower than that of the Icelanders, whereas the total Norwegian group is the highest recorded for Scandinavia. The Italians, too, exceed the small Spanish series and are more comparable to the Norwegians than to the Moroccan groups. Judging from this material there would seem to be little difference in this proportion between the so-called Nordics and Mediterraneans. One may say that the Riffians fall in with the more primitive examples of each group.

BI-ACROMIAL DIAMETER AND RELATIVE SHOULDER BREADTH

In the biacromial diameter, all Moroccan groups except the Shluh are similar to one another, with one possible exception. The Shluh fall far below the other five groups in this measurement, to a highly significant degree, whereas the only other difference, that of the Ghomara and Sheshawen, is perhaps more important than would appear because of the small size of the latter series, and the consequent reduction of the value of XP.E.

In comparison with other North African groups, it is seen greatly to exceed that of the Mzabites in every case, and in all cases except that of the Shluh to be reasonably similar to the small series of Algerian Arabs and Kabyles presented by d'Hercourt. The same generalization is true in regard to the West Coast Negroes and Irak Bedawin.

The difference between the five broader shouldered Moroccan groups and the Scandinavians is greater, but from a racial standpoint not outstanding.

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TABLE 8. BI-ACROMIAL DIAMETER

	No.	M.	σ	V.
Total Rif	530	37.34 ± .07	2.24 ± .05	6.00 ± .12
Total Senhaja	197	37.17 ± .09	1.87 ± .06	5.03 ± .15
Ghomara	73	37.00 ± .18	2.28 ± .13	6.16 ± .36
Sheshawen	28	37.64 ± .25	1.97 ± .18	5.23 ± .47
Arabs	93	37.22 ± .14	2.02 ± .10	5.43 ± .27
Shluh	277	35.76 ± .10	2.43 ± .07	6.80 ± .19

Comparative Data

North Africa	Authority	No.	M.	σ	V.
Mzabites	Amat	50	31.4		
Algerian Arabs	d'Hercourt	18	37.2		
Kabyles	d'Hercourt	13	38.8		
Africa south of the Sahara					
West Coast	Weninger	100	37.58 ± .15	2.18 ± .10	5.81 ± .28
Asia					
Irak Bedawin	Ehrich	32	37.77 ± .24	2.01 ± .17	5.32 ± .45
Europe					
Norway, Trondelagen	(L & L)		38.9		
Iceland	(L & L)		38.9		
Sweden (total)	L. and L.		39.23 ± .01	1.67 ± .01	4.24

Differences between Means, in Centimeters

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Norway	Sweden
Rif	--	..	..	..	..	..	..	..	.44	.24	..	1.89
Senhaja	.17	--	..	..	..	..	..	..	.61	.41	..	2.09
Ghomara	.34	.17	--	..	..	..	..	..	.78	.58	..	2.26
Sheshawen	.30	.47	.64	--	..	..	..	..	.14	.06	..	1.59
Arabs	.12	.05	.22	.42	--	..	..	..	.56	.36	..	2.01
Shluh	1.58	1.41	1.24	1.88	1.46	--	..	..	2.02	1.82	..	3.47

Difference of Means equals X times P.E.

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Norway	Sweden
Rif	--	..	..	..	..	..	..	..	1.76	1.41	..	7.88
Senhaja	1.54	--	..	..	..	..	..	..	2.34	2.41	..	8.36
Ghomara	1.79	.85	--	..	..	..	..	..	2.60	2.52	..	7.79
Sheshawen	1.15	1.74	2.06	--	..	..	..	..	.40	.21	..	4.68
Arabs	.75	.29	.96	1.48	--	..	..	..	2.15	1.71	..	7.42
Shluh	13.16	10.84	5.91	6.96	8.58	--	..	..	7.77	10.11	..	13.88

TABLE 9. RELATIVE SHOULDER BREADTH

	No.	M.	σ	V.
Total Rif	529	22.46 ± .03	1.07 ± .02	4.76 ± .10
Total Senhaja	197	22.22 ± .05	.92 ± .03	4.14 ± .12
Ghomara	73	22.48 ± .09	1.16 ± .07	5.16 ± .30
Sheshawen	28	22.93 ± .15	1.17 ± .10	5.10 ± .46
Arabs	93	22.13 ± .08	1.09 ± .05	4.92 ± .24
Shluh	277	21.66 ± .07	1.69 ± .05	7.80 ± .02
Kebdana		22.36 ± .18	.98 ± .12	4.38 ± .56
Mazuza		22.83 ± .14	1.13 ± .10	4.95 ± .43
Galiya		22.85 ± .09	.95 ± .06	4.16 ± .27
Nomads		22.72 ± .08	.63 ± .06	2.77 ± .24

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	M.	σ	V.
Said	23.10 ± .14	1.10 ± .10	4.76 ± .41
Ulishk	22.64 ± .10	1.08 ± .07	4.77 ± .31
Temsaman	22.49 ± .08	.85 ± .06	3.78 ± .26
Tuxin	22.76 ± .14	1.24 ± .10	5.45 ± .42
Gzennaya	21.82 ± .09	.99 ± .06	4.54 ± .29
Urriaghel	22.25 ± .09	1.09 ± .06	4.90 ± .29
Amart	21.77 ± .13	.90 ± .09	4.13 ± .42
Targuist	21.83 ± .15	.95 ± .11	4.35 ± .49
Bokoya	22.42 ± .12	.86 ± .08	3.84 ± .37
Maritimes	22.59 ± .14	.98 ± .10	4.34 ± .44
Zarket	21.96 ± .17	1.27 ± .12	5.78 ± .56
Bu Nsar	22.12 ± .15	1.11 ± .11	5.02 ± .48
Hamid	22.06 ± .18	1.13 ± .13	5.12 ± .58
Taghzuth	22.36 ± .09	1.07 ± .07	4.78 ± .30
Ktama	21.95 ± .15	1.07 ± .11	4.88 ± .50
Ar. Sen	22.50 ± .10	.99 ± .07	4.40 ± .31

Comparative Data

North Africa	Authority	No.	M.	σ	V.
Msabites	Amat	50	19.6		
Algerian Arabs *	d'Hercourt	18	22.23		
Kabyles *	d'Hercourt	13	22.78		
Africa south of the Sahara					
West Coast *	Weninger	100	22.25		
Asia					
Irak Bedawin †	Ehrich	32	22.13 ± .13	1.08 ± .09	4.88 ± .41
Europe					
Iceland	(L & L)	233	22.5		
Norway, Trondelagen	(L & L)		22.5		
Sweden (total)* [1]	L. and L.	46,983	22.80 ± .01	1.67	4.24
Denmark	(L & L)		22.9		

[1] P. E. M. calculated.

Differences between Means, in Index Points

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Norway	Sweden
Rif	--	..	..	..	..	..	..	..	.33	..	..	.34
Senhaja	.24	--	..	..	..	..	..	..	.09	..	..	.58
Ghomara	.02	.26	--	..	..	..	..	..	.35	..	..	.32
Sheshawen	.47	.71	.45	--	..	..	..	..	.80	..	..	.13
Arabs	.33	.09	.35	.80	--	..	..	..	.00	..	..	.67
Shluh	.80	.56	.82	1.27	.47	--	..	..	.47	..	..	1.14

Difference of Means equals X times P.E.

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Norway	Sweden
Rif	--	..	..	..	..	..	..	..	2.54	..	..	11.33
Senhaja	4.00	--	..	..	..	..	..	..	.56	..	..	11.60
Ghomara	.22	2.60	--	..	..	..	..	..	1.75	..	..	3.56
Sheshawen	3.13	4.44	2.65	--	..	..	..	..	4.00	..	..	.87
Arabs	3.67	1.00	2.92	4.70	--	..	..	..	.00	..	..	8.34
Shluh	10.00	6.22	7.46	7.44	4.28	--	..	..	3.13	..	..	16.28

Looking at the index derived from the shoulder breadth and stature, we find small indical differences between the six groups expanded into considerable differences in the value of XP.E., on account of the low standard deviation of this index. The most different

[1] P.E.M. calculated.

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are the Riffians and Shluh, and the least different the Riffians and the Ghomara. This statement is true only in regard to the values of XP.E.; the actual differences show a different arrangement, with Sheshawen the broadest shouldered relatively and the Shluh as usual in bottom place.

Differences from all comparative groups but the Mzabites are actually slight. All the series, with the above exception, fall within the range of Moroccan means. The value of XP.E. in the comparison with Sweden is largely an expression of the relative numerical values of the various Moroccan series.

BI-ILIAC DIAMETER

The values of the bi-iliac diameter in our six Moroccan series show a significant difference between all groups, except between the Senhaja and Ghomara. In general, the Sheshawen and Rif samples are the broadest hipped, whereas the Shluh are the narrowest. Of the few Algerian data available we find the Mzabites and Arabs below the Moroccan low extreme and the Kabyles intermediate, being most similar to the Senhaja and Ghomara.

All groups greatly exceed the West Coast Negroes, and to a very significant degree. On the other hand, the Swedish mean falls in the middle of the Moroccan range and shows, despite its minute probable error, no significant difference from the Senhaja and Ghomara. Its greatest difference in terms of X is with the broader hipped Riffians, but in actual breadth it is much more distant from Sheshawen.

The Sheshawen people and Riffians are thus less negroid in this diameter than are the Swedes, if we accept Weninger's series as typical of Negroes in general, whereas the Senhaja and Ghomara are directly comparable to the Scandinavian sample. The Shluh, although narrower than the others, are still greatly in excess of the Negroes.

TABLE 10. BI-ILIAC DIAMETER

	No.	M.	σ	V.
Total Rif	530	29.61 ± .06	2.04 ± .04	6.89 ± .14
Total Senhaja	197	28.89 ± .07	1.73 ± .05	5.99 ± .18
Ghomara	73	28.93 ± .11	1.85 ± .15	6.39 ± .50
Sheshawen	28	30.93 ± .29	2.25 ± .20	7.27 ± .66
Arabs	93	28.52 ± .11	1.56 ± .08	5.47 ± .27
Shluh	277	28.20 ± .07	1.72 ± .05	6.09 ± .17

COMPARATIVE DATA

North Africa	Authority	No.	M.	σ	V.
Mzabites	Amat	50	28.1		
Algerian Arabs	d'Hercourt	18	28.1		
Kabyles	d'Hercourt	13	28.9		
Africa south of the Sahara					
West Coast	Weninger	100	25.40 ± .09	1.38 ± .07	5.45 ± .26
Europe					
Iceland	Hannesson (L & L)		28.6		
Norway, Trondelagen	(L & L)		28.8		
Sweden (total)	L. and L.		28.80 ± .01	1.52 ± .00	5.27

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DIFFERENCES BETWEEN MEANS, IN CENTIMETERS

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Norway	Sweden
Rif	--	..	..	..	..	..	..	..	..	4.21	..	.81
Senhaja...	.72	--	..	..	..	..	..	..	..	3.49	..	.09
Ghomara .	.68	.04	--	..	..	..	..	..	..	3.53	..	.13
Sheshawen	1.32	2.04	2.00	--	..	..	..	..	..	5.53	..	2.13
Arabs	1.09	.37	.41	2.41	--	..	..	..	..	3.12	..	.32
Shluh	1.41	.69	.73	2.73	.32	--	..	..	..	2.80	..	.60

DIFFERENCE OF MEANS EQUALS X TIMES P.E.

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Norway	Sweden
Rif	--	..	..	..	..	..	..	..	..	38.27	..	13.50
Senhaja...	8.00	--	..	..	..	..	..	..	..	31.73	..	1.29
Ghomara .	4.44	.30	--	..	..	..	..	..	..	25.21	..	1.18
Sheshawen	6.73	6.80	14.93	--	..	..	..	..	..	18.43	..	7.35
Arabs	8.72	2.76	2.62	7.78	--	..	..	..	..	22.29	..	2.91
Shluh	15.68	6.90	5.44	9.08	2.39	--	..	..	..	25.45	..	8.57

TABLE 11. CHEST BREADTH

	No.	M.	σ	V.
Total Rif	530	27.52 ± .06	1.93 ± .04	7.01 ± .15
Total Senhaja	197	27.88 ± .09	1.86 ± .06	6.67 ± .20
Ghomara.....	73	27.41 ± .13	1.66 ± .10	6.06 ± .36
Sheshawen	28	28.82 ± .26	2.04 ± .19	7.08 ± .65
Arabs.....	93	27.24 ± .11	1.63 ± .08	5.98 ± .30
Shluh	277	26.83 ± .07	1.76 ± .05	6.56 ± .19

COMPARATIVE DATA

Africa south of the Sahara	Authority	No.	M.	σ	V.
Negroes	Martin		26.9		
Asia					
Irak Bedawin	Ehrich	32	28.28 ± .24	2.00 ± .16	7.07 ± .59
Europe					
French.....	Martin		26.9		
South Italians	Hrdlička		27.3		
North Italians	Hrdlička		27.5		
English	Hrdlička		28.0		
Irish.....	Hrdlička		28.0		
Old Americans	Hrdlička	246	29.76		

DIFFERENCES BETWEEN MEANS, IN CENTIMETERS

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Norway	Sweden
Rif	--	..	..	..	..	..	..	..	.76	..	..	..
Senhaja...	.36	--	..	..	..	..	..	..	.40	..	..	..
Ghomara .	.11	.47	--	..	..	..	..	..	.87	..	..	..
Sheshawen	1.30	.94	1.41	--	..	..	..	..	.57	..	..	..
Arabs	.28	.64	.17	1.58	--	..	..	..	1.04	..	..	..
Shluh	.69	1.05	.58	1.99	.41	--	..	..	1.45	..	..	..

DIFFERENCE OF MEANS EQUALS X TIMES P.E.

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Norway	Sweden
Rif	--	..	..	..	..	..	..	..	3.04	..	..	..
Senhaja...	3.27	--	..	..	..	..	..	..	1.54	..	..	..
Ghomara .	.79	2.94	--	..	..	..	..	..	3.22	..	..	..
Sheshawen	4.82	3.36	4.86	--	..	..	..	..	1.39	..	..	..
Arabs	2.15	4.57	1.00	5.64	--	..	..	..	4.00	..	..	..
Shluh	7.67	9.52	2.32	7.87	3.15	--	..	..	5.80	..	..	..

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TABLE 12. CHEST DEPTH

	No.	M.	σ	V.
Total Rif	530	24.22 ± .06	2.14 ± .04	8.84 ± .18
Total Senhaja	197	23.61 ± .08	1.62 ± .05	6.86 ± .21
Ghomara	73	24.01 ± .15	1.84 ± .11	7.66 ± .45
Sheshawen	28	25.59 ± .22	1.70 ± .16	6.64 ± .61
Arabs	93	22.50 ± .10	1.49 ± .07	6.62 ± .33
Shluh	277	22.18 ± .07	1.63 ± .05	7.35 ± .21

Comparative Data

Africa south of the Sahara	Authority	No.	M.	σ	V.
Negroes	Martin		19.5		
Asia					
Irak Bedawin †	Ehrich	32	22.69 ± .23	1.90 ± .16	8.38 ± .70
Europe					
French	Martin		19.4		
South Italians	Hrdlička		21.0		
Irish	Hrdlička		21.35		
North Italians	Hrdlička		21.4		
Old Americans	Hrdlička	246	21.70		
English	Hrdlička		22		

Differences between Means, in Centimeters

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Norway	Sweden
Rif	--	..	..	..	..	..	..	..	1.53	..	..	..
Senhaja	.65	--	..	..	..	..	..	..	.92	..	..	..
Ghomara	.21	.40	--	..	..	..	..	..	1.32	..	..	..
Sheshawen	1.37	1.98	1.58	--	..	..	..	..	2.90	..	..	..
Arabs	1.70	1.11	1.51	3.09	--	..	..	..	.19	..	..	..
Shluh	2.04	1.43	1.83	3.41	.32	--	..	..	.51	..	..	..

Difference of Means equals X times P.E.

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Norway	Sweden
Rif	--	..	..	..	..	..	..	..	6.37	..	..	..
Senhaja	6.10	--	..	..	..	..	..	..	3.83	..	..	..
Ghomara	1.31	2.35	--	..	..	..	..	..	4.89	..	..	..
Sheshawen	5.96	8.43	5.98	--	..	..	..	..	9.36	..	..	..
Arabs	14.78	8.54	10.07	12.87	--	..	..	..	.76	..	..	..
Shluh	22.67	13.62	11.09	14.82	2.67	--	..	..	2.12	..	..	..

TABLE 13. THORACIC INDEX, AFTER MARTIN AND HRDLIČKA

	Authority	No.	M. (Martin)	M. (Hrdlička)
Riffians		530	113.6	88.0
Senhaja		197	118.1	84.7
Ghomara		73	114.2	87.6
Sheshawen		28	112.8	88.7
Arabs		93	121.1	82.6
Shluh		277	121.0	82.7

Comparative Data

Africa south of the Sahara				
Negroes	Martin		138.0	72.5 *
Asia				
Irak Bedawin †	Ehrich	32	124.6	80.6

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Europe		M. (Martin)	M. (Hrdlička)
French	Martin	138.6	72.1 *
Old Americans	Hrdlička	136.8 *	72.9
Irish	Hrdlička	131.2 *	76.2
South Italians	Hrdlička	130.0 *	76.9
North Italians	Hrdlička	128.5 *	77.8
English	Hrdlička	127.2 *	78.6

In regard to the chest measurements and thoracic index, calculated both according to Hrdlička and to Martin, it is obvious that my material is not directly comparable to that obtained by most other investigators. In the field I found it practically impossible to measure the diameters of the chest at rest, between two respirations, according to the ideal laid down by Martin. Whenever I attempted to measure a chest, the instinct of the subject was to expand it, so as to appear as large chested as possible. Consequently I did not attempt to measure this in any other way, since in this way I was sure that the individuals in a given series would be comparable with each other, which would not have been the case had I attempted, and failed, to get them to permit measurement in the ideal posture.

The Riffians, Ghomarans, and Sheshawen people have chests which appear much deeper, and are shown to be such by measurement, than those of the Senhaja, Arabs, and Shluh. This dual division of the six major Moroccan groups is shown in the chest depth and in the thoracic index, rather than in the chest breadth. The depth is thus seen to be the controlling factor.

Comparing the groups measured by other investigators with each other, we find that the Negroes are notably flatter chested, both absolutely and relatively, than most of the European groups. Exceptions to this are found in the French and Old Americans. Hrdlička's selection of a single occupation group from the American population might explain the former instance. I am unaware of the provenience of Martin's measurements of the French.

The chest breadths of the Moroccan groups fall well within the range of the European groups measured by the normal technique, but of course the depths exceed most of them considerably. A notable exception to this is the superiority of the Irak Bedawin of Ehrich to the Shluh, Arabs, and Senhaja, and their inferiority to the Riffians, Ghomara, and inhabitants of Sheshawen. Ehrich's technique, I believe, was intermediate between mine and the normal. In the index, however, his series comes out flatter chested than does any of mine.

Although I regret that my data is not directly comparable to that of most investigators, I still feel that, for rough field work among primitive people, my technique is easier to apply and is productive of more accurate results in the long run. The paucity of comparative data obtained by any technique in regard to these measurements is so marked that the discrepancy is not so serious as it would be with other measurements and indices.

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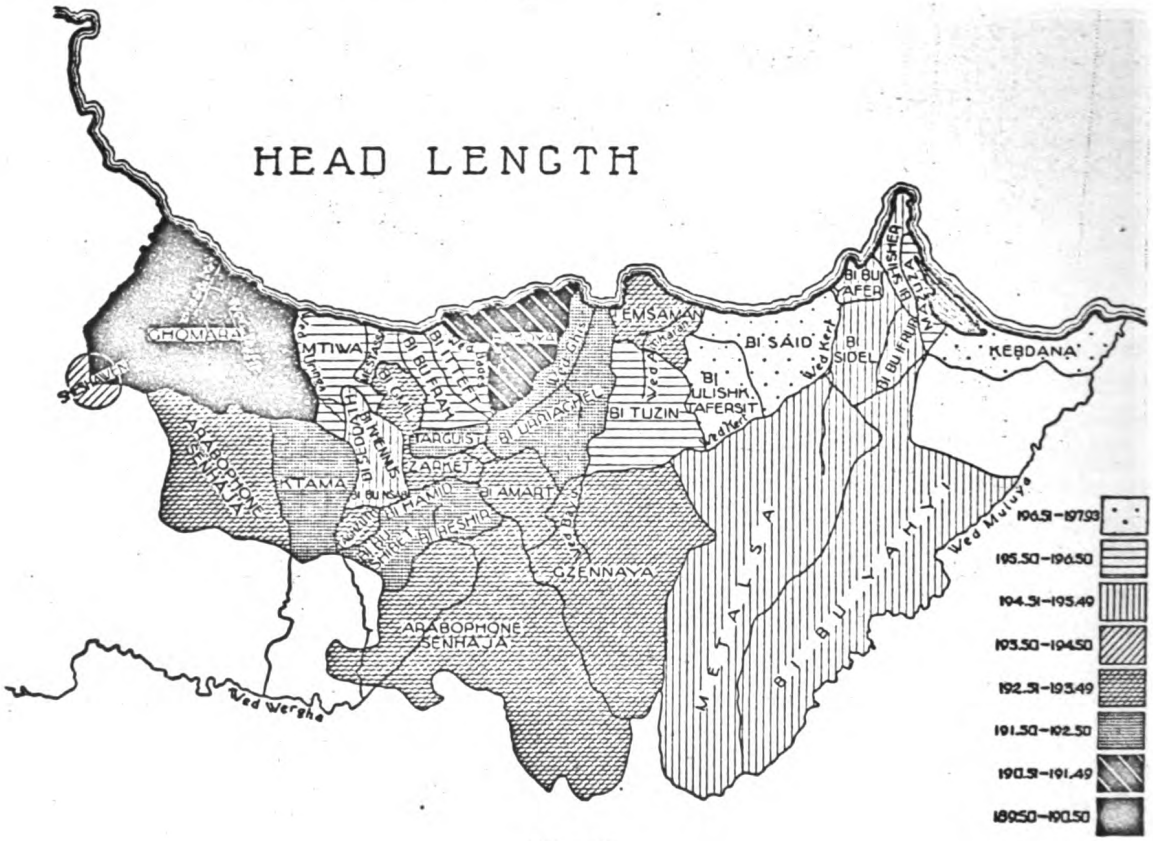
CHAPTER XVII

MEASUREMENTS AND INDICES OF THE HEAD AND FACE

HEAD LENGTH

IN THIS measurement, taken according to international agreement from the central and most protrusive point of the glabella to the most distant part of the occiput in a sagittal line, we find our Moroccan groups, especially the Riffians, ranging themselves among the longer headed (absolutely speaking) groups of mankind.



MAP 26

It may readily be seen that the map showing tribal values of head length in the Rif, Senhaja, and Ghomara, agrees to a certain extent with the stature map, in that the greatest mean dimensions are found in the east, and lower ones in the west. An exception to this apparent correlation with stature is seen in the case of Sheshawen, the shortest group of all, which is very long headed. In the Rif itself, heads are shortest in Beni Urriaghel and Bokoya, and a westerly center of excessive length is found in the Maritime tribes and the

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Beni Bu Nsar, Beni Seddath, Beni Khennus locus. In general, the Ghomara are relatively short headed; the Senhajans and Central Riffians of an intermediate tendency, with short tribal extremes, and the Eastern Riffians and Maritimes longer. The Nomads, although belonging to the longer headed division, are exceeded by the tribes north of them. All of the tribes and other groups, however, are long headed when judged from a world standpoint. Differences in length between them are of a minor nature. The Arabs and Shluh both are comparable to the Riffians in head length, especially when stature is taken into consideration. The only two groups which offer unusual measurements are the Ghomara, who are shortest, and the Sheshawen people, surprisingly long headed for their stature.

TABLE 14. HEAD LENGTH

	No.	M.	σ	V.
Total Rif	530	194.54 ± .19	6.57 ± .14	3.38 ± .07
Total Senhaja	197	192.90 ± .31	6.25 ± .19	3.24 ± .10
Ghomara	73	190.23 ± .52	6.65 ± .39	3.50 ± .21
Sheshawen	28	194.50 ± .77	6.03 ± .54	3.10 ± .28
Arabs	93	194.33 ± .42	6.02 ± .30	3.10 ± .15
Shluh	277	193.04 ± .26	6.31 ± .18	3.27 ± .09
Kebdana		197.93 ± .97	5.39 ± .69	2.72 ± .35
Mazuza		196.20 ± .74	5.98 ± .52	3.05 ± .27
Galiya		195.22 ± .55	6.09 ± .39	3.12 ± .20
Nomads		194.79 ± .77	6.16 ± .55	3.16 ± .28
Said		196.73 ± .71	5.80 ± .50	2.95 ± .26
Ulishk		196.79 ± .63	6.78 ± .44	3.44 ± .22
Temsaman		193.12 ± .57	5.89 ± .40	3.05 ± .21
Tuzin		196.37 ± .75	6.90 ± .53	3.51 ± .27
Gzennaya		193.02 ± .68	7.48 ± .48	3.88 ± .25
Urriaghel		191.69 ± .45	5.39 ± .32	2.81 ± .17
Amart		193.45 ± .97	6.77 ± .69	3.50 ± .36
Targuist		192.22 ± .98	6.19 ± .70	3.22 ± .36
Bokoya		191.42 ± .78	5.63 ± .55	2.94 ± .29
Maritimes		195.54 ± 1.02	7.07 ± .72	3.62 ± .37
Zarket		193.20 ± .92	6.85 ± .65	3.55 ± .34
Bu Nsar		194.88 ± .89	6.57 ± .63	3.37 ± .32
Hamid		192.44 ± .70	4.38 ± .49	2.28 ± .26
Taghzuth		193.20 ± .54	6.14 ± .38	3.18 ± .20
Ktama		191.91 ± 1.00	6.97 ± .71	3.63 ± .37
Ar. Sen		192.55 ± .53	5.34 ± .37	2.77 ± .19

COMPARATIVE DATA

North Africa	Authority	No.	M.	σ	V.
Blond Kabyles	Viré	22	182.35		
Brunet Kabyles	Viré	43	186.50		
Shawia	Papillault	15	187.5		
Kabyles †	d'Hercourt	13	189.84 ± .14	5.98 ± .78	4.21 ± .55
Mzabites	Amat	50	190.0		
Algerian Arabs †	d'Hercourt	18	190.33 ± 1.68	6.68 ± .78	3.51 ± .39
Shawia †	R.-Mac I. and W.	57	192.02 ± .49	5.50 ± .15	2.86 ± .18
Kabyles †	R.-Mac I. and W.	50	192.76 ± .64	6.71 ± .45	3.48 ± .23
Africa south of the Sahara					
West Coast	Weninger	100	191.35 ± .46	6.77 ± .32	3.54 ± .17

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Asia	Authority	No.	M.	σ	V.
Sheher	L. and J.	82	180.21 ± .48	6.40 ± .35	3.55 ± .19
Yemen	L. and J.	20	180.95 ± .89	5.92 ± .63	3.27 ± .35
Muscat	L. and J.	31	184.35 ± 1.01	8.34 ± .71	4.52 ± .39
Irak Bedawin	Ehrich	33	190.44 ± .70	5.99 ± .50	3.15 ± .26
Europe					
South Italians	Hrdlička	50	191.0		
Spain	Barras (W)	79	191.30 ± .63	7.84 ± .39	4.10 ± .21
Norway	B. and S.	11,770	192.58 ± .04	6.54	3.39
Spain, Carcereños	Aranzadi	23	192.80		
Sweden, 1902[1]	(L & L)		192.9		
Cambridge students	Macdonnell (G)	1,000	193.51 ± .13		
Denmark	Hansen (L & L)	2,000	193.6		
Royal Engineers	(G)		193.6		
Norway, Eidfjord	A. Schreiner	36	193.72		
Sweden (total), 1926	L. and L.		193.84 ± .02	6.19 ± .01	3.20
Norway, Opland	B. and S.	739	194.43 ± .15	6.13	3.15
Western Sweden, V.	L. and L.		194.69 ± .07	6.00 ± .05	3.08
Scotch students	Macdonnell (G)		194.8		
Old Americans, east Tennessee	Hrdlička	133	195.0		
Norway, Hålandsdal	A. Schreiner	64	195.30 ± .50	5.97	3.17
Faroe Islands	(L & L)		195.3		
Oxford students	Schuster (G)	959	196.05 ± .13		
English convicts	G.		195.55		
Runo Island	(L & L)		195.7		
University College staff	Pearson (G)	25	196.38		
Iceland	(L & L)		196.6		
Iceland	Hannesson (L & L)	844	197.3		
Old Americans, Lab. and Virginia	Hrdlička	594	197.6		
Norway, Valle	A. Schreiner	120	197.95 ± .36	5.78	2.89

[1] From Anthropologica Suecica.

Skeletal Material	Authority	No.	M.	M. + 7.4 mm.
Spanish	Hoyos Sainz (H)		183.0	190.4
Azores, modern	Lajard (H)	20	183.5	190.9
Teneriffe	Hooton	247	185.9	193.3
English and Scotch Iron Age	Morant	61	187.4	194.8
Merovingians (Muids)	Hamy (H)	26	188.0	195.4
Franks of Hainaut	Houzé (H)	45	188.3	195.7
Whitechapel	Morant	137	189.1[1]	196.5
Moorfields	Parsons		189.2	196.6
Graverow Saxons	Gildemeister (H)	46	190.2	197.6
Anglo-Saxons	Morant	58	190.6	198.0
Merovingians (Boulonnais)	Hamy	20	191.1	198.5
English and Scotch Neolithic	Morant	53	193.7	201.1
Long Barrow	Parsons		196.0	203.4
Males and Females				
Burgundians	Schwerz (H)		183.2	190.6
Alamanni of Augst	Schwerz (H)		183.5	190.9
Swiss Alamanni	Schwerz (H)		184.0	191.4

[1] Parsons obtains the same mean.

DIFFERENCES BETWEEN MEANS, IN MILLIMETERS

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Spain	Norway	Sweden
Rif	--	..	..	..	..	..	1.78	2.52	4.50	3.19	3.24	1.96	.70
Senhaja	1.64	--	..	..	..	..	.14	.88	2.46	1.55	1.60	.32	.94
Ghomara	4.31	2.67	--	..	..	..	2.53	1.79	.21	1.12	1.07	2.35	3.61
Sheshawen	.04	1.60	4.27	--	..	..	1.74	2.48	4.06	3.15	3.20	1.92	.66
Arabs	.21	1.43	4.10	.17	--	..	1.57	2.31	3.89	2.98	3.03	1.75	.49
Shluh	1.50	.14	2.81	1.46	1.29	--	.28	1.02	2.60	2.69	2.74	.46	.80

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DIFFERENCE OF MEANS EQUALS X TIMES P.E.

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Spain	Norway	Sweden
Rif	--	..	..	..	..	..	2.66	4.76	6.16	6.38	4.91	9.80	3.68
Senhaja ...	4.56	--	..	..	..	..	.19	1.52	3.20	2.82	2.29	1.00	3.00
Ghomara ..	7.84	4.38	--	..	..	..	3.09	2.49	.24	1.62	1.35	4.52	6.94
Sheshawen .	.05	1.93	4.59	--	..	..	1.74	2.73	3.90	3.50	3.23	2.49	.86
Arabs	.46	2.75	6.12	.19	--	..	1.95	3.56	4.74	4.81	3.99	4.17	1.17
Shluh	4.69	.35	4.84	1.80	2.63	--	.41	1.82	3.47	3.19	4.09	1.70	3.08

Turning to Algeria for comparison, we fail to find an extention of the extreme long-headedness found in the Eastern Rif, as we did with stature. All of the Algerian groups available are shorter headed than the Riffians, in fact, shorter than any Moroccan group but the Ghomara. These differences, while not extreme, appear significant. The West African Negroes reach the upper range of the Algerian groups and the lower range of the Moroccan, being about intermediate between the two.

The Irak Bedawin, almost identical with d'Hercourt's small series of Algerian Arabs, fall considerably below the length of the self-styled Arabs of Morocco, whereas the southern Arabs of Leys and Joyce are a generically short headed people and alien to any group we are concerned with in Morocco. They are comparable only to Viré's series of Kabyles.

Turning to Europe, or rather, to the long headed peoples of that continent and to their descendants in America, we find little difference between the Spaniards and the present-day national Scandinavian means. Certain Norwegian groups and marginal island populations present an excessive length, and the longer headed districts in Sweden present means identical or nearly so with that of the Riffians. The British and American means, varying from 195 to 198 mm., exceed the Riffian figure and fall in with the Icelandic and longest headed Norwegian material.

The Spaniards fall within the lower reaches of the Moroccan range. It is interesting to note the slight differences in head length between Iberians, Riffians, and Scandinavians, despite extreme differences in stature, with which this dimension is traditionally correlated. The increase in head length in Sweden between 1902 and 1926, incident to an increase in stature, raises the Swedish mean from a former proximity to that of Spain. In proportion to stature, the Scandinavians are shortest headed, the Riffians intermediate, and the Spaniards longest.

Looking at the skeletal series we find that the Nordic groups exceed the two Mediterranean series present, but that the general gradation is unbroken. The neolithic groups greatly exceed all others. In order to make a comparison with living groups, a correction for the soft parts is necessary. Czekanowski [1] gives as the mean thickness of the integument over the glabella 3.23 mm., and over the occiput 4.14 mm., making a total of 7.37 mm. Let us add 7.4 mm. to each mean, and observe the results.

The Ghomarans are comparable to the Spaniards and the Azores series, whereas the other Moroccan groups considerably exceed these two. The Nordic groups cover a great range, from 190.6 to 198.5, about the middle of which would fall close to the Riffians. Hooton's Teneriffe series falls close to them, as do the English and Scotch Iron Age crania. The seventh century Whitechapel and the relatively late Moorfields series, both probably representing the general mixed London population of different periods, exceed the Riffians

[1] Martin, *Lehrbuch der Anthropologie*, p. 522.

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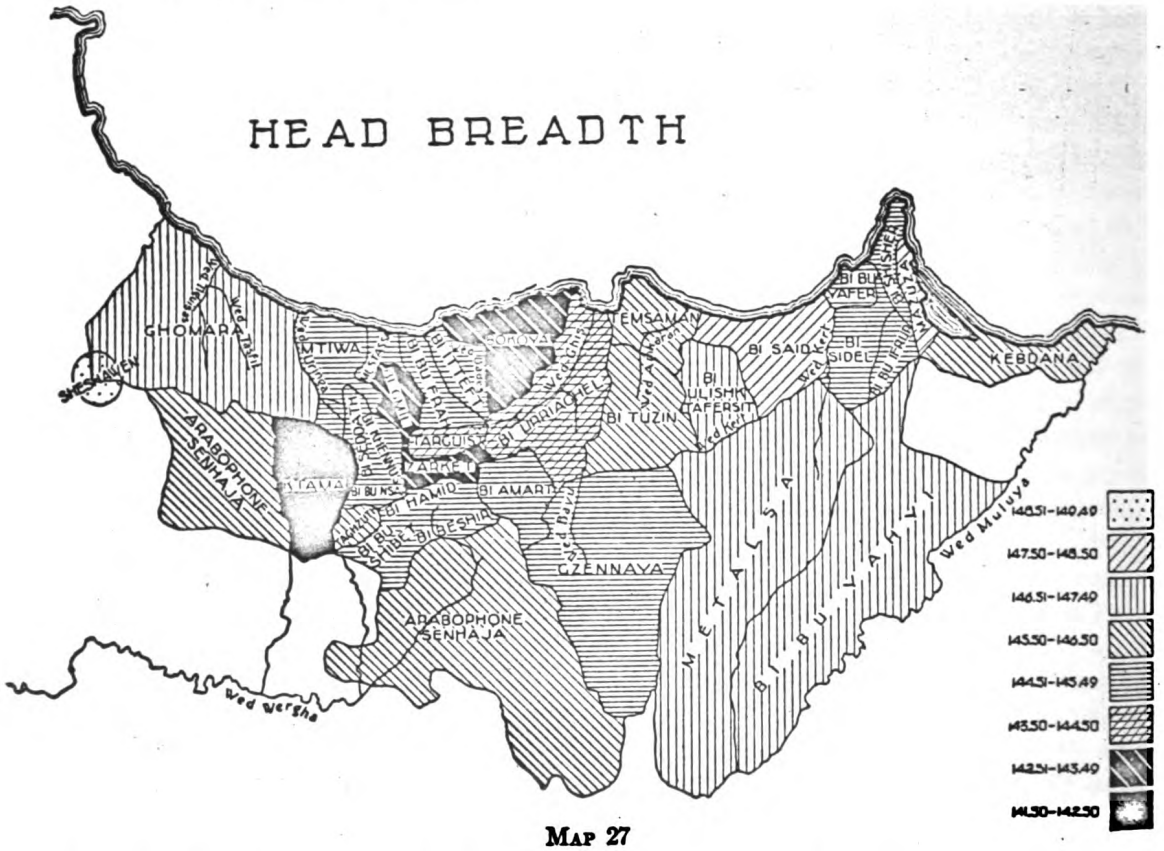
by two millimeters. The neolithic series, reaching the excessive means of 201 and 203, generically exceed our group, as well as the Nordic groups, and to a much greater degree, the Spanish.

On the whole, this comparative study of skeletal means with living Moroccan groups shows the affinity of the Riffians to ancient North European peoples, most markedly with the British Iron Age group, and with the Guanches of Teneriffe; its excess over the two South European groups represented, and its great inferiority to the British neolithic peoples. On the whole, the series of skeletal groups shows little or no difference from the modern groups of the same stocks, despite a difference in stature. Perhaps the failure of head length to increase with stature is due to a compensatory increase in breadth.

HEAD BREADTH

In general, the head breadth of all the Moroccan groups is narrow; the only notably narrower peoples subjected to measurements being Australoid groups and Bushmen, Hamitic Negroes, and true Negroes.



MAP 27

Comparing the Riffian and Senhajan tribes internally, as shown on the map, it would seem that broader heads are centered in the east, with Beni Said and Mazuza as foci, and the narrower ones being concentrated in Bokoya and Targuist, and in the contiguous Senhajan group of Zarket, Beni Mesduy, and Beni Gmil. Ktama, too, is very narrow headed,

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and the Senhajan group as a whole is narrower headed than the Riffians, whereas the Ghomara are almost a millimeter broader, on the average, than the Riffians. The broadest heads are found in Sheshawen, with no graded continuity connecting them with the peoples about them. In this respect they are only following their usual tendency in their rôle of an alien group, to be unlike their neighbors. The head breadth of Sheshawen, 149 mm., makes them directly comparable with modern European groups.

The Arabs maintain a mean intermediate between that of the Rif and Senhaja, and the Shluh form the narrowest headed of the six major groups.

TABLE 15. HEAD BREADTH

	No.	M.	σ	V.
Total Rif	530	145.79 ± .15	5.02 ± .10	3.44 ± .07
Total Senhaja	197	144.83 ± .25	5.05 ± .15	3.49 ± .11
Ghomara	73	146.73 ± .41	5.23 ± .31	3.56 ± .21
Sheshawen	28	149.04 ± .65	5.09 ± .46	3.42 ± .31
Arabs	93	145.13 ± .35	4.98 ± .25	3.43 ± .17
Shluh	277	143.77 ± .21	5.16 ± .15	3.59 ± .10
Kebdana		145.50 ± .82	4.56 ± .58	3.13 ± .40
Mazuza		148.33 ± .50	4.03 ± .35	2.72 ± .24
Galiya		145.47 ± .46	5.07 ± .33	3.49 ± .22
Nomads		147.24 ± .52	4.16 ± .37	2.82 ± .25
Said		148.03 ± .64	5.20 ± .45	3.51 ± .31
Ulishk		147.17 ± .45	4.89 ± .32	3.32 ± .22
Temsaman		145.88 ± .43	4.46 ± .30	3.06 ± .21
Tusin		146.29 ± .50	4.59 ± .36	3.14 ± .24
Gzennaya		144.71 ± .46	5.06 ± .32	3.49 ± .22
Urriaghel		144.22 ± .35	4.17 ± .25	2.89 ± .17
Amart		145.09 ± .70	4.84 ± .49	3.34 ± .34
Targuist		143.78 ± .94	5.94 ± .67	4.13 ± .46
Bokoya		143.17 ± .55	4.01 ± .39	2.80 ± .27
Maritimes		144.96 ± .78	5.46 ± .56	3.77 ± .38
Zarket		143.40 ± .82	6.11 ± .58	4.26 ± .41
By Nsar		145.16 ± .70	5.21 ± .50	3.59 ± .34
Hamid		144.56 ± .47	2.93 ± .33	2.03 ± .23
Taghzuth		145.80 ± .40	4.59 ± .28	3.15 ± .20
Ktama		142.23 ± .83	5.76 ± .59	4.05 ± .41
Ar. Sen		145.58 ± .53	5.39 ± .38	3.70 ± .26

COMPARATIVE DATA

North Africa	Authority	No.	M.	σ	V.
Brunet Kabyles	Viré	43	143.34		
Algerian Arabs †	d'Hercourt	18	143.50 ± .90	5.60 ± .62	3.92 ± .43
Shawia *	Papillault	15	144.19		
Blond Kabyles	Viré	22	145.08		
Kabyles †	d'Hercourt	13	146.31 ± .80	4.21 ± .55	2.88 ± .37
Mzabites	Amat	50	147.0		
Shawia †	R.-Mac I. and W.	57	148.53 ± .58	6.48 ± .41	4.36 ± .27
Kabyles †	R.-Mac I. and W.	50	149.24 ± .56	5.84 ± .39	3.91 ± .26
Africa south of the Sahara					
Shilluk	Tucker and Myers (M)		138.0		
Dinka	Tucker and Myers (M)		139.0		
West Coast	Weninger	100	142.50 ± .36	5.27 ± .25	3.70 ± .18

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Asia	Authority	No.	M.	σ	V.
Muscat	L. and J.	31	144.58 ± .64	5.30 ± .45	3.67 ± .31
Yemen	L. and J.	20	145.50 ± .82	5.41 ± .58	3.73 ± .40
Sheher	L. and J.	82	145.76 ± .42	5.58 ± .29	3.14 ± .17
Irak Bedawin †	Ehrich	33	146.21 ± .48	4.08 ± .34	2.79 ± .23
Europe					
Eastern Norway	Bryn (L & L)		148.4		
Carcerefios	Aranzadi	23	149.4		
Western Sweden, VIII	L. and L.		149.55 ± .12	4.89 ± .08	3.27
Spain	Barras (W)	79	149.60 ± .38	4.72 ± .24	3.16 ± .16
Sweden (total)	L. and L.		150.44 ± .01	5.10 ± .01	3.39
Western Sweden, V	L. and L.		150.48 ± .06	4.89 ± .04	3.25
Norway, Opland	B. and S.	739	150.61 ± .13	5.02	3.33
South Italians	Hrdlička	50	151.0		
Old Americans, east Tennessee	Hrdlička	133	151.0		
Royal Engineers	(G)		151.1		
Norway (total)	B. and S.	11,764	152.13 ± .04	5.71	3.78
English convicts	G.		152.30		
Trondelagen	Bryn (L & L)		152.8		
Oxford students	Schuster (G)	959	152.84 ± .11		
Norway, Eidfjord	A. Schreiner	34	153.14		
Scotch students	Macdonnell (G)		153.4		
University College staff	Pearson (G)	25	153.58		
Norway, Hålandsdal	A. Schreiner	64	153.89 ± .37	4.41	2.87
Iceland	Hannesson (L & L)	844	154.1		
Old Americans, Lab. and Virginia	Hrdlička	594	154.5		
Faroe Islands	(L. and L.)		154.9		
Norway, Valle	A. Schreiner	120	154.92 ± .29	4.70	3.03
Denmark	Hansen (L & L)	2,000	156.0		
Runo Island	(L & L)		156.19		

Comparative Data

Skeletal Material	Authority	No.	M.	M. + 7.0 mm.
Azores, modern	Lajard (H)	20	135.6	142.6
Spanish	Hoyos Sainz (H) (M)		138.0	145.0
English and Scotch Neolithic	Morant	128	138.9	145.9
Graverow Saxons	Gildemeister (H)	46	139.7	146.7
Merovingians (Boulonnais)	Hamy (H)	20	139.9	146.9
Long Barrow	Parsons	..	140.0	147.0
Whitechapel	Morant	135	140.7	147.7
English and Scotch Iron Age	Morant	102	141.4	148.4
Anglo-Saxons	Morant	103	141.7	148.7
Merovingians (Muids)	Hamy (H)	26	142.0	149.0
Teneriffe	Hooton	247	142.1	149.1
Franks of Hainaut	Houzé (H)	45	142.4	149.4
Moorfields	Parsons		143.0	150.0
Males and Females				
Alamanni of Augst	Schwerz (H)		140.0	147.0
Burgundians	Schwerz (H)		140.3	147.3
Swiss Alamanni	Schwerz (H)		141.7	148.7

Differences between Means, in Millimeters

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Spain	Norway	Sweden
Rif	--	..	..	..	..	..	3.45	2.74	.42	3.29	3.81	6.34	4.65
Senhaja	.96	--	..	..	..	..	3.41	3.70	1.78	2.33	4.77	7.30	5.61
Ghomara	.94	1.90	--	..	..	..	2.51	1.80	.52	4.23	2.87	5.40	3.71
Sheshawen	3.25	4.21	2.13	--	..	..	.20	.51	2.83	6.54	.56	3.09	1.40
Arabs	.66	.30	1.60	3.91	--	..	4.01	3.40	1.08	2.63	4.47	7.00	5.31
Shluh	2.02	1.06	2.96	5.27	1.36	--	5.47	4.76	2.44	1.27	5.83	8.36	6.67

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DIFFERENCE OF MEANS EQUALS X TIMES P.E.

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Spain	Norway	Sweden
Rif	--	..	..	..	..	..	5.95	4.57	.84	8.44	9.07	39.62	31.00
Senhaja ...	3.31	--	..	..	..	..	5.59	5.88	3.30	5.30	10.60	29.20	22.44
Ghomara ..	2.14	3.96	--	..	..	..	3.64	2.54	.83	7.84	5.13	13.17	9.03
Sheshawen .	5.16	6.02	2.77	--	..	..	.23	.59	3.49	8.84	.75	4.75	2.15
Arabs	1.74	.70	2.96	5.28	--	..	6.08	5.00	1.80	5.26	8.60	20.00	15.17
Shluh	7.77	3.31	6.44	7.75	3.32	—	9.12	7.68	4.69	3.02	1.36	38.00	3.18

Turning eastward, we find a great disparity between the means rendered by various authors on the same peoples. If we accept Viré, Papillault, and d'Hercourt, the Shawia and Kabyles are comparable to all our groups but Sheshawen; if we accept Randall-Mac Iver and Wilkin, they are much broader headed and comparable to Sheshawen alone. Whether these differences indicate unlike techniques, or differences of regions sampled, is a question incapable of immediate solution.

The Negroes, especially the Nilotics, are considerably narrower headed than the Riffians, although the West Coast Negroes do not differ greatly in this measurement from the Shluh. The Asiatic Bedawin do not fall far from our Moroccan means, being nearest the Ghomara. Judging in values of XP.E., they are comparable to the Ghomara, Rif, and Arabs. The short headed southern Arabs resemble in breadth all Moroccans but Sheshawen.

Turning to Europe, we find no group with heads as narrow as any of our Moroccan series excepting Sheshawen. There seems little difference in this dimension, as in so many others, between Spaniards and Scandinavians. Both are comparable to the Sheshawen group, and far above the Riffians and others. The outlying Scandinavians and Old Americans, who had longer heads than the continental Scandinavians, have broader ones as well, and hence are not more comparable to the Riffians in this respect.

In this measurement above all others it is most important that we should consult the older series of Nordic and Mediterranean skeletons, representing periods in advance of the modern brachycephalization of Europe. The accompanying list gives the means of as many of these groups as I could obtain, along with a series of corrected means, formed by the addition of 7.0 mm. to the skeletal mean. This was done in accordance with Czekanowski's statement that the mean thickness of the soft parts of the parietals of Europeans is 3.42 mm.[1] Multiplying this by 2 we obtain 6.98, or 7.0, since we are carrying our decimals to but one place.

The Azores and Spanish groups are now definitely narrower than the Nordic groups in general, although the latter in certain cases approximate the former. The Azores group, which are modern, suggestively approximate the mean of Weninger's West Coast Negroes, just as they did in length. The Shluh too, but slightly higher, may owe their relatively narrow heads to this influence. The Riffians and the Ghomara are slightly higher than the Spaniards and attach themselves to the lower borders of the Nordic range. The neolithic British crania also belong to this class, from which they are distinctly excluded, however, because of their length.

The Riffians and Ghomara represent a low Nordic head breadth, or one intermediate between it and that of the only Mediterranean group which we possess. The Shluh, and possibly Senhaja and Arabs as well, may have been affected by negroid influence in this dimension. Sheshawen owes its broadheadedness in all probability to its comparatively recent association with Europe.

[1] Martin, p. 522.

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CEPHALIC INDEX

The six Moroccan groups, with the exception of the Ghomara and townsmen of Sheshawen, are clearly dolichocephalic, whereas the two last mentioned range on the borderline between dolicho- and mesocephaly. Low constants of variation show all groups to be remarkably homogenous in this index. The Ghomara, with the highest index, appear significantly different in this respect from all but the small Sheshawen series, which in the component measurements showed itself similar to modern European groups.

Tribal means of the Rif and Sheshawen show no clear differentiation of regional types. The highest index in the Rif is that of the Nomads, and in the Senhaja is that of the tribes most nearly in the path of the Senhajan invasion, but in neither case can these facts be considered significant. There is no gradual approximation to the Ghomaran mean in the west; if anything, the opposite.

In Algeria the cephalic indices range higher than in Morocco. The Kabyles and Shawia resemble the Ghomara more than other Moroccans, and the lowest indices seem to belong to the local Arabs. In Negro Africa, one finds a great range in the cephalic index, even while excluding the pigmies. The fundamental head form of the Negroes seems, however, to be dolichocephalic, and not greatly different from our Moroccans, nor, as will be seen later, from older North and South European types.

TABLE 16. CEPHALIC INDEX

	N.	M.	σ	V.
Total Rif	530	75.01 ± .08	2.88 ± .06	3.84 ± .08
Total Senhaja	197	75.13 ± .15	3.00 ± .09	3.99 ± .12
Ghomara	73	77.26 ± .26	3.23 ± .20	4.30 ± .25
Sheshawen	28	76.54 ± .33	2.61 ± .24	3.41 ± .31
Arabs	93	74.64 ± .21	3.02 ± .15	4.05 ± .20
Shluh	277	74.52 ± .13	3.15 ± .09	4.23 ± .12
Kebdana		73.50 ± .57	3.18 ± .40	4.33 ± .55
Masuza		75.60 ± .38	3.07 ± .27	4.06 ± .35
Galiya		74.71 ± .30	3.26 ± .21	4.36 ± .28
Nomads		75.69 ± .28	2.24 ± .20	2.96 ± .26
Said		75.27 ± .34	2.76 ± .24	3.67 ± .32
Ulishk		74.81 ± .25	2.67 ± .18	3.57 ± .23
Temsaman		75.76 ± .26	2.68 ± .18	3.54 ± .24
Tuzin		74.53 ± .31	2.82 ± .22	3.78 ± .29
Gzennaya		75.02 ± .25	2.73 ± .18	3.64 ± .23
Urriaghel		75.27 ± .24	2.80 ± .17	3.72 ± .22
Amart		75.04 ± .44	3.07 ± .31	4.09 ± .42
Targuist		74.61 ± .60	3.77 ± .42	5.05 ± .57
Bokoya		74.88 ± .39	2.86 ± .28	3.82 ± .37
Maritimes		73.96 ± .28	1.96 ± .20	2.65 ± .27
Zarket		74.20 ± .34	2.54 ± .24	3.42 ± .33
Bu Nsar		74.56 ± .41	3.06 ± .29	4.10 ± .39
Hamid		75.17 ± .38	2.36 ± .27	3.14 ± .35
Taghzuth		75.65 ± .27	3.03 ± .19	4.00 ± .25
Ktama		74.14 ± .48	3.31 ± .34	4.46 ± .45
Ar. Sen		75.64 ± .30	3.08 ± .21	4.07 ± .28

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Comparative Data

North Africa	Authority	No.	M.	σ	V.
Algerian Arabs †	d'Hercourt	18	75.82 ± .40	2.53 ± .28	3.23 ± .36
Western Plateaux *	B. and C.	134	76.15		
Kabyles *	d'Hercourt	13	76.77 ± .53	2.81 ± .37	3.66 ± .48
Kabyles *	B. and C.	305	76.82		
Brunet Kabyles	Viré	43	76.85		
Shawia	Papillault	15	76.9		
Shawia †	R.-Mac I. and W.	57	77.09 ± .29	3.31 ± .21	4.29 ± .27
Mzabites	Amat	50	77.3		
Kabyles †	R.-Mac I. and W.	50	77.44 ± .40	4.19 ± .28	5.42 ± .37
Shawia *	B. and C.	34	78.59		
Blond Kabyles	Viré	22	78.72		
Africa south of the Sahara					
Buduma	Poutrin (M)		72.5		
Bahima	Czekanowski (M)		72.5		
Banyaruanda	Czekanowski (M)		73.7		
Fiot	Poutrin (M)		74.4		
Bateke	Poutrin (M)		74.6		
West Coast	Weninger	100	74.62 ± .22	3.21 ± .15	4.30 ± .21
Danakil	Deniker (M)		74.9		
Ekoi	Mansfeld (M)		75.0		
Duala and Batanga	v. Luschan (M)		75.3		
Togo	v. Luschan (M)		75.6		
Kagoro	Tremearne (M)		76.0		
Acholi	Czekanowski (M)		77.5		
Mandja	Poutrin (M)		77.7		
M'Baka	Poutrin (M)		78.1		
Sudanese *	B. and C.	202	78.34		
Azande	Poutrin (M)		78.4		
Babinga	Poutrin (M)		79.3		
Egap (Kamerun)	Malcom (M)		79.4		
Manyema	Czekanowski (M)		79.4		
Fan	Czekanowski (M)		79.5		
Sara	Poutrin (M)		82.5		
Asia					
Irak Bedawin †	Ehrich	33	76.85 ± .38	3.23 ± .27	4.20 ± .34
Muscat	L. and J.	31	78.28 ± .50	4.10 ± .35	
Sheher	L. and J.	82	80.92 ± .27	3.63 ± .19	
Yemen	L. and J.	20	81.07 ± .66	4.37 ± .37	
Yemen	Mungier (M)		82.5		
Europe					
Corsicans	Fallot (M)		76.6		
Sweden, Sodermanlands län	L. and L.		76.81 ± .05	3.07 ± .03	4.01
Sweden, Vastmanlands län	L. and L.		76.81 ± .05	2.92 ± .04	3.80
Valenciana, 1894	Oloriz	502	76.84		
Jemtland	Hultkranz (M)		77.3		
Eastern Norway	Bryn (L & L)		77.45		
Carcereños	Aranzadi	23	77.50 ± .29		
Sardinians	Livi	6,579	77.5		
Old Americans, east Tennessee	Hrdlička	133	77.5		
Norway, Opland	B. and S.	739	77.52 ± .08	3.29	4.23
English	Beddoe (M)		77.6		
Sweden (total)	L. and L.		77.69 ± .01	3.14 ± .01	4.04
Upper Andalusia	Oloriz (W)	945	77.71		
Scotch	Beddoe and Venn (M)		77.8		

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	Authority	No.	M.	σ	V.
Irish	Beddoe and Venn (M)		77.9		
Oxford students	Schuster (G)	959	78.02		
Royal Engineers	(G)		78.1		
Iceland *	Hannesson (L & L)	844	78.10		
English convicts	G.		78.12		
Old Americans, Lab. and Virginia	Hrdlička	594	78.2		
University College staff	Pearson (G)	25	78.20		
Spanish	Barras (W)	79	78.25 ± .26	3.23 ± .16	4.13 ± .21
Norway, Valle	A. Schreiner	131	78.34 ± .15	2.57	3.28
Calabria	Livi	13,122	78.4		
Scotch students	Macdonnell (G)		78.8		
Norway, Hålandsdal	A. Schreiner	76	78.80 ± .21	2.67	3.39
South Italians	Hrdlička	50	78.8		
Norway (total)	B. and S.	11,761	78.97 ± .02	3.44	4.36
Lower Andalusia	Oloriz	751	79.01		
Spain, 1923	Barras	206	79.05 ± .16		
Upper Andalusia	Barras	36	79.28 ± .34		
Lower Andalusia, 1923	Barras	122	79.35 ± .22		
Norway, Eidfjord	A. Schreiner	40	79.37 ± .33		
Cambridge students	Pearson (G)	1,000	79.56		
Faroe Islands	Hansen	493	79.56	3.01	
Sicilians	Livi	32,526	79.6		
Runo Island	Hilden (L & L)		79.8		
Puglia	Livi	16,077	79.8		
Cantabrica, 1923	Oloriz	463	80.27		
Denmark	Hansen (L & L)	2,000	80.6		
Faroe Islands	Jorgensen (L & L)		82.3		
Faroe Islands, 1889	Arbo (Hansen)	20	83.15		

Comparative Data

Skeletal Material	Authority	No.	M.
English and Scotch Neolithic	Morant	53	71.7
Long Barrow	Parsons	..	71.7
Merovingians, Boulonnais	Hamy	20	73.2
Graverow Saxons	Gildemeister	46	73.6
Azores, modern	Lajard	20	73.8
Anglo-Saxon	Morant	131	74.3
Whitechapel	Morant	131	74.3 [1]
Teneriffe, modern	Lajard		74.6
Carthaginians	B. and C.		75.0
Portuguese, modern	Ferraz de Macedo		75.0
Franks of Hainaut	Houzé	45	75.3
English and Scotch Iron Age	Morant	61	75.4
Merovingians, Muids	Hamy	26	75.5
Moorfields	Macdonnell		75.5 [2]
Merovingians, Upper Normandy	Hamy		75.6
Teneriffe	Hooton		76.0
Teneriffe, "Nordics"	Hooton		76.2

[1] Parsons and Macdonnell obtain the same mean as Morant.

[2] Parsons' mean is the same.

Differences between Means, in Index Points

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Spain	Norway	Swede$_n$
Rif	--	..	..	..	..	..	2.43	2.08	1.84	.39	3.24	3.96	3.68
Senhaja	.12	--	..	..	..	..	2.31	1.96	1.72	.51	3.12	3.84	3.56
Ghomara	2.25	2.13	--	..	..	..	.18	.17	.41	2.64	.99	1.71	.43
Sheshawen	1.53	1.41	.72	--	..	..	.90	.55	.31	1.92	1.71	2.43	1.15
Arabs	.37	.49	2.62	1.90	--	..	2.80	2.45	2.21	.02	3.61	4.33	3.05
Shluh	.49	.61	2.74	2.02	.12	--	2.92	2.57	2.33	.14	3.73	4.45	3.17

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DIFFERENCE OF MEANS EQUALS X TIMES P.E.

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Spain	Norway	Sweden
Rif	--	..	..	..	..	..	5.93	6.93	4.72	1.70	12.00	44.00	46.00
Senhaja ...	.71	--	..	..	..	..	5.50	5.94	4.20	1.89	10.40	25.60	23.72
Ghomara ..	8.34	7.10	--	..	..	..	.38	.47	.89	7.77	2.68	6.58	1.65
Sheshawen .	4.50	3.92	1.80	--	..	..	1.73	1.25	.62	4.80	4.07	7.36	3.49
Arabs	1.68	1.88	7.94	4.87	--	..	6.22	6.81	5.14	.07	10.94	20.62	14.52
Shluh	3.27	3.05	9.45	5.77	.48	--	6.79	8.03	5.83	.54	12.86	34.23	24.30

The Asiatic Bedawin approximate our two least dolichocephalic Moroccan groups, and the south Arabians appear as high meso- and low brachycephals.

All Europeans available for comparison exceed the Riffians in the mean cephalic index. The table of Scandinavian, British, and Mediterranean means shows a range from 76 to 83, with the North European and Mediterranean groups scattered throughout the range. The most nearly dolichocephalic are Corsicans, Swedes from two provinces in what Lundborg and Linders call "the kernel area of the Nordic race," and Valencians. National means from Scandinavian countries and from Spain and Italy are distinctly higher. Clearly, in both areas there is a substratum of dolichocephaly. The Swedes on the whole are the most nearly dolichocephalic of Scandinavians, whereas the British and Americans fall closer to the Norwegians, Danes, and insular groups.

In order to determine the relationship between Riffians and the North European and Mediterranean groups we must, as with stature, turn to earlier European groups, since any relationship would be ancient rather than modern, and because western Europe, as is well known, has increased during historic times in the cephalic index. Some authorities add two points to the index taken on the skull and others one, in order to approximate it to that of the living.

In either case, the neolithic crania are more dolichocephalic than the Riffians. The Boulonnais Merovingians, Graverow Saxons, Anglo-Saxons, Whitechapel, and modern Canarian skulls are sufficiently close to the Riffian mean to be considered similar. Other Canarian, Iron Age and Mediaeval British, Frankish, and Merovingian series seem slightly less dolichocephalic. The modern Azores series is similar, whereas the modern Portuguese is greater. The prehistoric Canarians are distinctly a rounder headed group, more like the Ghomara.

In general, the Riffians resemble old Nordic groups in head form, probably resembling old Mediterranean groups as well. The Ghomara show themselves similar to the Canarians. The similarity between the Riffians and the old Nordic groups is thus manifest in stature, head length and breadth, and in cephalic index. The Riffians exceed Mediterranean groups in stature and probably in head dimensions.

HEAD HEIGHT

In this measurement[1] the Riffians and Sheshawen people join in attaining the maximum mean dimensions. Sheshawen, the highest headed, is shortest in stature, reversing the general rule of a correlation between head height and stature, Except for that group, the order

[1] In measuring head height I did not use a head-spanner, since among a primitive people this instrument creates fear and makes persuasion difficult. After having measured stature, I lowered the under bar of the anthropometer, at the same time sliding it in on the main shaft, and measured the height of porion, the upper border of the ear-hole, from the ground, before the subject had shifted his position or moved his head, at the same time holding the anthro-

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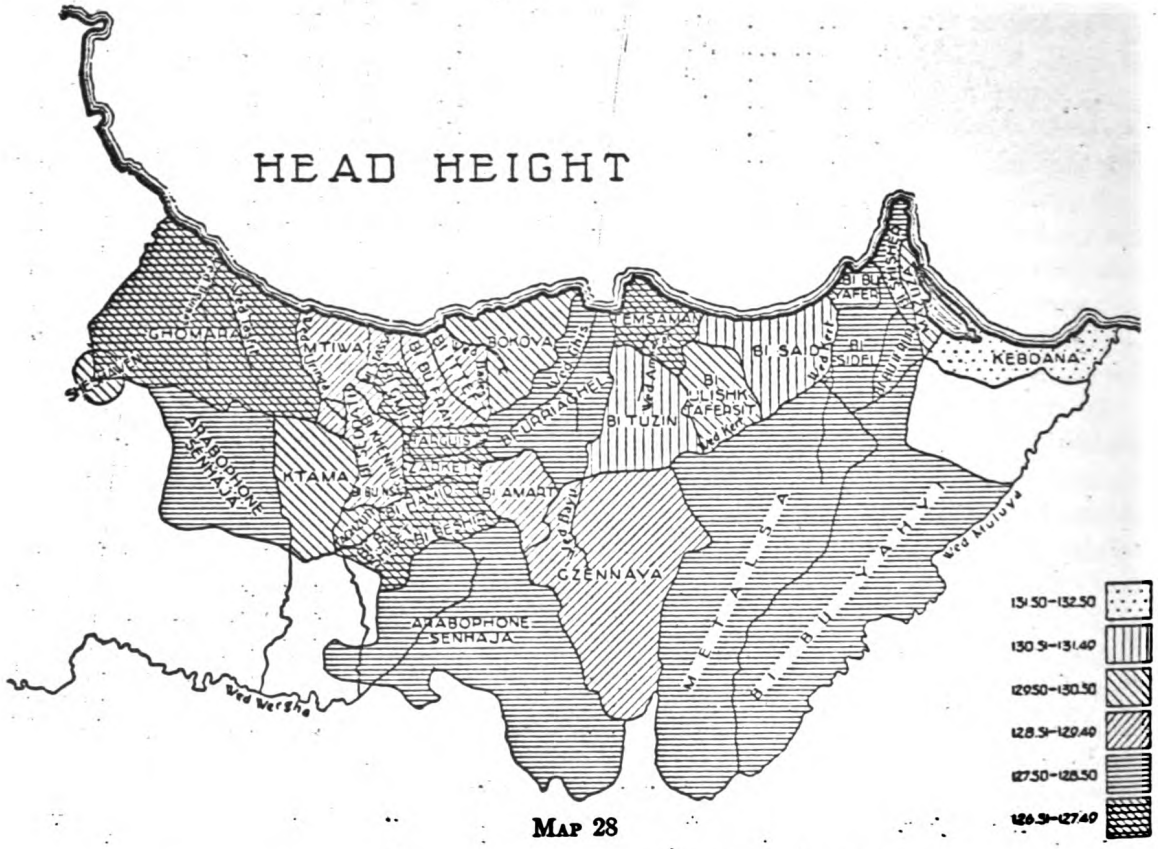
of head height means ascends with that of stature. In the Rif this dimension follows stature, with a notable exception, that of Bokoya, a high headed group of low stature. In this respect it resembles Ktama, the highest headed of the Senhajan tribes, and at the same time the shortest. In general the Central Riffian tribes are lower headed than the others, a difference possibly due to stature.

The three small Algerian series seem similar to or higher than the Riffians. The mean of Weninger's West Coast Negroes is well within our range, closest to the Arabs and Gho-



MAP 28

mara. Significant differences between the Negro head height and those of Moroccan groups are found only with the Rif and Shluh, representing the two extremes. The Sheshawen group is numerically too small to be significantly different.

The most dolichocephalic province in Norway, and the three series of Mme. Schreiner, possess low head heights, whereas the total Norwegian series, slightly higher, is in excess of

pometer rigidly in place. The recorder subtracted this measurement from stature and wrote the result in the margin of the blank. After measuring the body diameters with the upper half of the anthropometer, and before the subject was made to sit down for the caliper measurements on the head, I held the half-anthropometer in one hand, with the top bar touching the highest point of the head, in such a way that the recorder might sight the axis of the anthropometer with the sagittal axis of the face. When the recorder indicated that the two lines were parallel I slid the lower bar into place, again measuring porion. If this head height agreed with the former, the figure indicated was written on the blank; otherwise the measurement was taken a number of times until the exact height had been determined.

This technique, although it takes time, is subject to checking and hence is probably as accurate as any other way of taking this measurement, which is admittedly the least accurate by nature of any in modern anthropometry.

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the general Spanish mean. The small Spanish provincial group and the various British representatives on the other hand exceed the Riffians, the British in considerable degree. Unfortunately there are no data on Swedish head heights.

It is impossible to compare basion-bregma and auricular head heights directly, even when both are on the skeleton, and the comparison between auricular heights on the skull

TABLE 17. HEAD HEIGHT

	No.	M.	σ	V.
Total Rif	530	129.22 ± .18	6.07 ± .13	4.70 ± .10
Total Senhaja	197	128.79 ± .25	5.06 ± .15	3.93 ± .12
Ghomara	73	127.49 ± .40	5.13 ± .32	4.02 ± .24
Sheshawen	28	129.50 ± .84	6.60 ± .60	5.10 ± .46
Arabs	93	127.66 ± .44	6.24 ± .31	4.89 ± .24
Shluh	277	126.17 ± .24	5.58 ± .17	4.64 ± .13
Kebdana		131.50 ± .83	4.61 ± .59	3.51 ± .45
Mazuza		130.50 ± .64	5.18 ± .45	3.97 ± .35
Galiya		128.40 ± .50	5.55 ± .36	4.32 ± .28
Nomads		128.48 ± .87	6.93 ± .61	5.39 ± .48
Said		130.97 ± .80	6.48 ± .56	4.95 ± .43
Ulishk		129.76 ± .50	5.35 ± .35	4.12 ± .27
Temsaman		127.18 ± .51	5.12 ± .36	4.03 ± .28
Tusin		130.84 ± .65	5.97 ± .46	4.56 ± .35
Gsennaya		128.93 ± .62	6.83 ± .44	5.30 ± .34
Urriaghel		128.42 ± .49	5.79 ± .35	4.51 ± .27
Amart		128.68 ± 1.01	7.04 ± .72	5.47 ± .56
Targuist		126.61 ± .84	5.28 ± .59	4.17 ± .47
Bokoya		130.04 ± .79	5.73 ± .56	4.41 ± .43
Maritimes		129.18 ± .90	6.23 ± .63	4.82 ± .49
Zarket		127.20 ± .61	4.54 ± .43	3.56 ± .34
Bu Nsar		129.44 ± .59	4.36 ± .42	3.37 ± .32
Hamid		127.28 ± .64	4.04 ± .45	3.17 ± .36
Taghzuth		130.02 ± .44	5.03 ± .31	3.87 ± .24
Ktama		130.05 ± .74	5.14 ± .52	3.95 ± .40
Ar. Sen		127.87 ± 1.53	5.38 ± .37	4.21 ± .29

COMPARATIVE DATA

North Africa	Authority	No.	M.	σ	V.
Kabyles	d'Hercourt	13	129.0		
Algerian Arabs	d'Hercourt	18	131.0		
Shawia	Papillault	15	133.0		
Africa south of the Sahara					
West Coast	Weninger	100	127.92 ± .38	5.62 ± .27	4.39 ± .21
Europe					
Norway, Hålandsdal	A. Schreiner	62	123.66 ± .44	5.11	4.13
Opland	B. and S.	737	125.16 ± .15	6.10	4.84
Valle	A. Schreiner	129	125.74 ± .25	4.21	3.35
Eidfjord	A. Schreiner	36	125.89		
Spain	Barras (W)	67	126.37 ± .65	8.14 ± .49	6.44 ± .39
Norway (total)	B. and S.	11,775	126.66 ± .04	6.09	4.81
Spain, Carcereños	Aranzadi	23	130.2		
Scotch students	Macdonnell (G)		132.3		
University College staff	Pearson (G)	25	134.78		
English convicts	G.		134.94		
Oxford students	Schuster (G)	959	136.62 ± .16		

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Skeletal Material	Basion-bregma Authority	No.	M.	Auricular Authority	No.	M.
Moorfields	Macdonnell (H)	44	129.8	Parsons	..	113.8
Azores, modern	Lajard (H)	20	130.6			
Teneriffe	Hooton	247	131.9			
Whitechapel	Morant	22	132.0	Parsons	..	114.6
English and Scotch Iron Age	Morant	77	132.9			
Merovingians (Muids)	Hamy (H)	26	133.0			
Spanish	Hoyos Sainz (H) (M)		133.0			
Franks of Hainaut	Houzé (H)	45	133.1			
Long Barrow				Parsons	..	117.3
English and Scotch Neolithic	Morant	25	135.5			
Anglo-Saxons	Morant	31	136.0			
Merovingians (Boulonnais)	Hamy (H)	20	136.0			
Whitechapel	Macdonnell (H)	137	136.0			
Males and Females						
Alamanni of Augst	Schwerz (H)		130.1			
Burgundians	Schwerz (H)		131.5			
Swiss Alamanni	Schwerz (H)		132.8			

DIFFERENCES BETWEEN MEANS, IN MILLIMETERS

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Spain	Norway	Sweden
Rif	--	..	..	..	..	..	..	..	..	1.30	2.85	2.56	..
Senhaja	.43	--	..	..	..	..	..	..	..	.87	2.42	2.13	..
Ghomara	1.73	1.30	--	..	..	..	..	..	..	.42	1.12	.83	..
Sheshawen	.28	.71	2.01	--	..	..	..	..	..	1.58	3.13	2.84	..
Arabs	1.56	1.13	.17	1.84	--	..	..	..	..	.26	1.29	1.00	..
Shluh	3.05	2.62	1.32	3.33	1.49	--	..	..	..	1.75	.20	.49	..

DIFFERENCE OF MEANS EQUALS X TIMES P.E.

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Spain	Norway	Sweden
Rif	--	..	..	..	..	..	..	..	..	3.10	4.26	13.47	..
Senhaja	1.38	--	..	..	..	..	..	..	..	1.93	3.46	8.20	..
Ghomara	3.93	2.77	--	..	..	..	..	..	..	.76	1.47	2.08	..
Sheshawen	.33	.81	2.16	--	..	..	..	..	..	1.72	2.95	3.38	..
Arabs	3.25	2.22	.29	1.94	--	..	..	..	..	.45	1.63	2.27	..
Shluh	10.17	7.49	2.81	3.83	2.98	--	..	..	..	3.88	.29	1.96	..

with those taken on the living subject is again insecure. The inclusion of the present table of cranial head heights indicates the similarity between old North and South European series and the further difficulty of likening the Riffians to one more than to the other in this measurement. Probably the Riffians are higher headed than these ancient types, but how much so cannot be determined.

LENGTH-HEIGHT INDEX

In this index, the relation between the head height and the glabello-occipital length, our six Moroccan groups divide themselves into two groups: the Rif, Senhaja, Ghomara, and Sheshawen, with an index hovering about 67; and the Arabs and Shluh, with an index approximating 65.5. The indices of the Algerian groups given vary so greatly that it is difficult to decide which, if not all, are correct. If we accept Bertholon and Chantre's figures, the Algerians on the whole are below the Riffians, falling nearer, although still below, the Arabs and Shluh. D'Hercourt's two groups, the Arabs and Kabyles, differ greatly internally, and Papillault's figure for the Shawia exceeds that of Bertholon and

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Chantre by over six index points. On the whole it would be foolish to draw any serious conclusions from this comparative data.

The Negroes on the whole, judging from the accompanying table all of which with one exception is derived from Martin's compilation, are a relatively high headed group, ex-

TABLE 18. LENGTH-HEIGHT INDEX

	No.	M.	σ	V.
Total Rif	530	66.83 ± .09	3.00 ± .06	4.49 ± .09
Total Senhaja	197	66.79 ± .14	2.75 ± .08	4.12 ± .12
Ghomara	73	67.12 ± .24	3.01 ± .18	4.48 ± .26
Sheshawen	28	66.68 ± .37	2.87 ± .26	4.30 ± .39
Arabs	93	65.63 ± .20	2.85 ± .14	4.34 ± .22
Shluh	277	65.42 ± .12	2.97 ± .09	4.54 ± .13
Kebdana		66.43 ± .43	2.38 ± .30	3.58 ± .46
Mazuza		66.43 ± .38	3.06 ± .27	4.61 ± .40
Galiya		65.80 ± .21	2.27 ± .15	3.45 ± .22
Nomads		65.90 ± .35	2.78 ± .25	4.22 ± .37
Said		66.60 ± .39	3.20 ± .28	4.80 ± .42
Ulishk		66.02 ± .23	2.44 ± .16	3.70 ± .24
Temsaman		65.86 ± .26	2.66 ± .18	4.04 ± .28
Tusin		66.66 ± .32	2.92 ± .23	4.38 ± .34
Gsennaya		66.03 ± .31	3.38 ± .22	5.12 ± .33
Urriaghel		67.05 ± .24	2.82 ± .17	4.21 ± .25
Amart		66.64 ± .55	3.82 ± .39	5.73 ± .58
Targuist		65.61 ± .45	2.83 ± .32	4.31 ± .48
Bokoya		68.00 ± .46	3.35 ± .33	4.93 ± .48
Maritimes		66.04 ± .33	2.27 ± .23	3.44 ± .35
Zarket		65.88 ± .32	2.37 ± .23	3.60 ± .34
Bu Nsar		66.28 ± .32	2.39 ± .23	3.61 ± .34
Hamid		66.22 ± .28	1.78 ± .20	2.69 ± .30
Taghsuth		67.41 ± .26	2.97 ± .18	4.40 ± .27
Ktama		67.77 ± .39	2.71 ± .28	3.99 ± .41
Ar. Sen		66.40 ± .27	2.77 ± .19	4.17 ± .29

COMPARATIVE DATA

North Africa	Authority	No.	M.	σ	V.
Kabyles	d'Hercourt *	13	62.68		
Western Plateaux	B. and C.*	29	64.34		
Shawia	B. and C.*	21	64.76		
Kabyles	B. and C.*	130	64.89		
Algerian Arabs	d'Hercourt *	18	67.95		
Shawia	Papillault *	15	70.96		
Africa south of the Sahara					
Swahili	von Luschan (M)		66.3		
West Coast	Weninger	100	66.88 ± .18	2.67 ± .13	3.99 ± .19
Babinga	Poutrin (M)		68.3		
Togo	von Luschan (M)		69.5		
Duala and Batanga	von Luschan (M)		70.3		
Mbaka	Poutrin (M)		75.1		
Ekoi	Mansfeld (M)		76.0		
Europe					
Norway, Opland	B. and S.	737	64.43 ± .08	3.29	5.11
Norway (total)	B. and S.	11,761	65.80 ± .02	3.34	5.08
Spain	Barras (W)	67	66.04 ± .35	4.36 ± .26	6.60 ± .40
Carcereños	Aranzadi	23	67.5		

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Skeletal Material	Basion-bregma Authority	No.	M.	Auricular Authority	No.	M.
Long Barrow		..		Parsons	..	59.8
Moorfields	Macdonnell (H)	..	68.4	Parsons	..	68.4
Merovingians, Upper Normandy	Hamy (H)	..	68.9			
Whitechapel	Macdonnell, Morant	..	70.0	Parsons	..	70.0
English and Scotch Neolithic	Morant	25	70.0			
Teneriffe, "Nordics"	Hooton	..	70.3			
Carthaginians	B. and C. (H)	..	70.5			
Merovingians, Muids	Hamy (H)	..	70.7			
English and Scotch Iron Age	Morant	61	70.9			
Teneriffe, modern	Lajard (H)	..	71.1			
Azores, modern	Lajard (H)	..	71.1			
Merovingians, Boulonnais	Hamy (H)	..	71.2			
Graverow Saxons	Gildemeister (H)	..	71.6			
Portuguese, modern	Ferraz de Macedo (H)	..	72.2			
Males and Females						
Alamanni of Augst	Schwerz (H)	..	71.6			

DIFFERENCES BETWEEN MEANS, IN INDEX POINTS

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Spain	Norway	Sweden
Rif	--	..	..	..	..	..	..	..	..	.15	.79	1.03	..
Senhaja	.04	--	..	..	..	..	..	..	..	.11	.75	.99	..
Ghomara	.29	.33	--	..	..	..	..	..	..	.44	1.08	1.32	..
Sheshawen	.15	.11	.44	--	..	..	..	..	..	..	.64	.88	..
Arabs	1.20	1.13	1.49	1.05	--	..	..	..	..	1.05	.41	.17	..
Shluh	1.41	1.37	1.70	1.26	.21	--	..	..	..	1.23	.62	.38	..

DIFFERENCE OF MEANS EQUALS X TIMES P.E.

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Spain	Norway	Sweden
Rif	--	..	..	..	..	..	..	..	..	.75	2.19	11.45	..
Senhaja	.44	--	..	..	..	..	..	..	..	.48	1.97	7.07	..
Ghomara	1.12	1.18	--	..	..	..	..	..	..	1.47	2.57	5.50	..
Sheshawen	2.53	2.75	1.00	--	..	..	..	..	..	..	1.25	2.38	..
Arabs	5.45	4.71	4.81	2.50	--	..	..	..	..	3.89	1.02	.85	..
Shluh	9.40	7.61	6.30	3.23	.91	--	..	..	..	5.59	1.69	3.17	..

ceeding in the main what few European means we have. The West Coast series, which we use for direct statistical comparison, is almost identical with the Riffians in this respect, and agrees with the upper Moroccan division.

Both the Norwegians and the Spaniards, except for Aranzadi's small series, agree more nearly with the Shluh and Arabs than with the northerly Moroccans, and agree considerably with each other.

Both in the living and on the skeleton, the length-height indices of the Nordic and Mediterranean groups practically coincide, and both are, in the case of the living, significantly although not greatly below the Riffian mean, which may indicate a Hamitic or negroid factor in the latter. On the other hand, the distribution of this index tribally shows that the higher index is Central Riffian where there has presumably been the least Hamitic or negroid influence, at least in modern times. Among the Senhaja, Zarket, which has perhaps the lowest negroid contingent, has the lowest index, and Taghzuth and Ktama have the highest. The Nomads and Targuist, both of alien origin, have low indices, as do Galiya and Temsaman.

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BREADTH-HEIGHT INDEX

This index is simply another way of expressing the relative value of the head height, bringing out perhaps more clearly the difference between dolicho- and brachycephals. Our Moroccan series brings out two main groups, the Rif and Senhaja with the relatively higher heads, and Sheshawen and Ghomara with relatively low ones, with the Arabs and Shluh intermediate. This may be interpreted to indicate the greater dolichocephaly of the two higher and two intermediate groups, the chief differences in actual height being between them; the difference of the Sheshawen and Ghomara groups from the others being merely an expression of their greater head breadth. Examining the Rif internally, it appears that the central tribes are the higher in general, with low points marking the Nomadic invasion route and Targuist. Bokoya and Ktama are again similar in their retention of extreme places in this index, and the Arabophone Senhaja are lower than the other Senhaja, and comparable to the Arabs.

The indices for the Algerian groups are extremely varied, particularly within the same group when published by different investigators. Judging by Bertholon and Chantre's results, the Algerian groups are either broader or lower headed; judging by d'Hercourt and Papillault they are similar to or in excess of the Riffians.

The Negroes, judging from the scanty data present, are a relatively high headed group, comparable to if not in excess of the Riffians. The two principal European groups presented, the Norwegians and Spaniards, are similar to each other and both lower than the Riffians,

TABLE 19. BREADTH-HEIGHT INDEX

	No.	M.	σ	V.
Total Rif	530	88.74 ± .13	4.35 ± .09	4.90 ± .10
Total Senhaja	196	89.10 ± .20	3.92 ± .12	4.40 ± .13
Ghomara	73	87.01 ± .31	3.96 ± .23	4.55 ± .27
Sheshawen	28	86.96 ± .47	3.69 ± .33	4.24 ± .38
Arabs	93	88.02 ± .30	4.31 ± .21	4.90 ± .24
Shluh	277	87.89 ± .18	4.28 ± .21	4.87 ± .14
Kebdana		90.43 ± .79	4.37 ± .56	4.83 ± .62
Mazuza		88.10 ± .45	3.65 ± .32	4.14 ± .36
Galiya		88.22 ± .41	4.49 ± .29	5.09 ± .33
Nomads		87.48 ± .53	4.22 ± .37	4.82 ± .43
Said		88.50 ± .56	4.52 ± .39	5.11 ± .44
Ulishk		90.87 ± .52	5.57 ± .37	6.13 ± .40
Temsaman		87.08 ± .35	3.60 ± .25	4.13 ± .28
Tusin		89.53 ± .41	3.79 ± .29	4.23 ± .33
Gzennaya		89.25 ± .43	4.76 ± .31	5.33 ± .34
Urriaghel		89.14 ± .40	4.70 ± .28	5.27 ± .31
Amart		88.82 ± .74	5.17 ± .53	5.82 ± .59
Targuist		88.28 ± .72	4.52 ± .51	5.12 ± .58
Bokoya		91.42 ± .51	3.94 ± .38	4.32 ± .42
Maritimes		89.23 ± .63	4.39 ± .45	4.92 ± .50
Zarket		89.24 ± .51	3.77 ± .36	4.22 ± .40
Bu Nsar		89.24 ± .49	3.60 ± .34	4.03 ± .38
Hamid		88.00 ± .46	2.92 ± .33	3.32 ± .37
Taghsuth		89.26 ± .37	4.18 ± .26	4.68 ± .29
Ktama		91.50 ± .63	4.39 ± .45	4.80 ± .49
Ar. Sen		87.94 ± .41	4.17 ± .29	4.74 ± .33

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COMPARATIVE DATA

		No.	M.	σ	V.
North Africa					
Kabyles	B. and C.	56	84.25		
Shawia	B. and C.	21	85.25		
Western Plateaux	B. and C.	29	85.45		
Kabyles *	d'Hercourt	13	88.17		
Algerian Arabs *	d'Hercourt	18	89.89		
Shawia	Papillault	15	92.24		
Africa south of the Sahara					
Babinga	Poutrin (M)		86.6		
West Coast	Weninger	100	89.92 ± .32	4.70 ± .22	5.23 ± .25
M'baka	Poutrin (M)		96.5		
Europe					
Norway, Opland	B. and S.	737	83.09 ± .11	4.28	5.11
Norway (total)	B. and S.	11,754	83.42 ± .03	1.16	4.98
Spain	Barras (W)	67	84.25 ± .41	5.18 ± .31	6.15 ± .37
Carcereños *	Aranzadi	23	87.20		

From basion-bregma height

	Authority	No.	M.
Carthaginians	B. and C. (H)	..	90.0
Merovingians, Upper Normandy	Hamy (H)	..	92.1
Teneriffe, "Nordics"	Hooton	..	92.3
Merovingians, Muids	Hamy (H)	..	92.9
Teneriffe	Hooton	..	93.5
Franks of Hainaut	Houzé (H)	..	94.0
Azores, modern	Lajard (H)	..	96.3
Merovingians, Boulonnais	Hamy (H)	..	97.2
Portuguese, modern	Ferraz de Macedo (H)	..	97.4
English and Scotch Neolithic	Morant	25	102.5
Anglo-Saxon	Morant	61	104.9
English and Scotch Iron Age	Morant	77	106.3
Whitechapel	Morant	122	106.6

DIFFERENCES BETWEEN MEANS, IN INDEX POINTS

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Spain	Norway	Sweden
Rif	--	..	..	..	..	..	..	..	..	1.18	4.49	5.32	..
Senhaja	.36	--	..	..	..	..	..	..	..	.82	4.85	5.68	..
Ghomara	1.73	2.09	--	..	..	..	..	..	..	2.91	2.76	3.59	..
Sheshawen	1.78	2.14	.05	--	..	..	..	..	..	2.96	2.71	3.54	..
Arabs	.72	1.08	1.01	1.06	--	..	..	..	..	1.90	3.77	4.60	..
Shluh	.85	1.21	.88	.93	.13	--	..	..	..	2.03	3.64	4.47	..

DIFFERENCE OF MEANS EQUALS X TIMES P.E.

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Spain	Norway	Sweden
Rif	--	..	..	..	..	..	..	..	..	3.37	10.45	38.00	..
Senhaja	1.50	--	..	..	..	..	..	..	..	2.05	10.55	28.40	..
Ghomara	5.09	5.81	--	..	..	..	..	..	..	6.47	5.41	11.55	..
Sheshawen	3.63	4.20	.11	--	..	..	..	..	..	5.19	4.37	7.53	..
Arabs	2.20	3.00	2.35	1.89	--	..	..	..	..	4.32	7.39	15.33	..
Shluh	3.86	4.48	2.44	1.86	3.71	--	..	..	..	5.49	8.09	2.48	..

whereas Aranzadi's small provincial series approximates the lower range of Moroccan groups.

The skeletal data presented unfortunately cannot be used directly for comparison but show the lack of difference between Nordic and Mediterranean groups in general.

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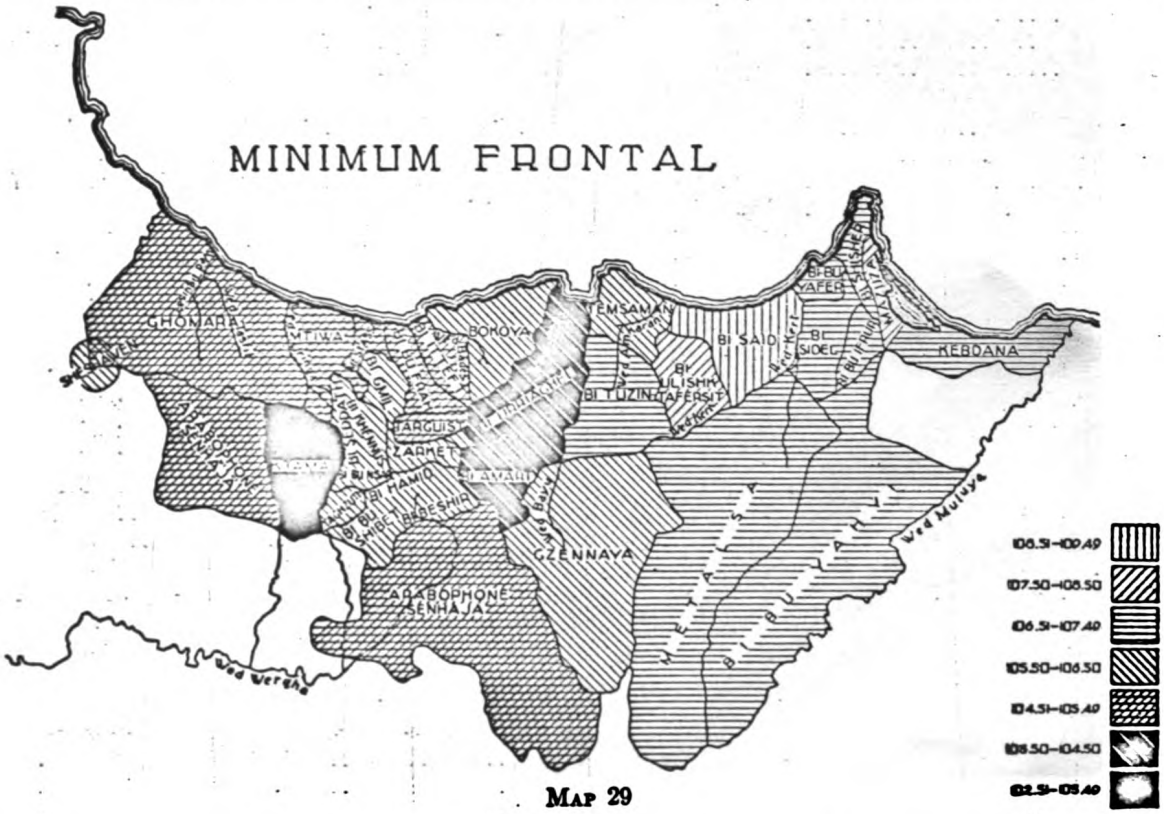
MINIMUM FRONTAL DIAMETER

In this measurement the Riffians, who present the broadest foreheads, significantly exceed all other groups but Sheshawen, who differ from them in but very slight degree. Looking at the tribal values of this measurement, however, we see that the tribes which are responsible for the high value of the total Riffian sample all lie to the east of the Nekor, starting with Beni Tuzin and Temsaman, and reaching the highest point in Beni Said. The



MAP 29

Central Riffians attain a mean of 104 or 105 mm., comparable in general to the rest of the Moroccan groups. Among the Senhaja, Ktama falls lowest and Zarket and Beni Bu Nsar highest. The general Senhajan average approximates that of the Central Rif. The Ghomara are perhaps closer to them and the Shluh lower than any northern group saving Ktama.

Looking to Algeria, it is easy to see that the high figure attained by the Eastern Riffian tribes expresses a general tendency for this value to increase as one goes eastward, and to decrease westward, towards the Straits of Gibraltar.

The Irak Bedawin of Ehrich show no significant difference from the lower of the Moroccan groups and from the Central Riffian tribes, but do show a significant one from the Rif as a whole.

The European groups obtainable, both Nordic and Mediterranean in origin, cover the range of the Riffians, Senhaja, and Sheshawen. The Riffians as a whole approximate the figure of the Norwegians from Valle and of the Old Americans. The skeletal data available, accepting Czekanowski's correction (after Martin), would indicate that older Nordic groups

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fell below both modern North European and North African means. It is possible, however, that this correction is too small. The most comparable series, accepting the correction, are those of the neolithic English population.

As with so many other measurements, we may say that that of the Riffians, particularly the Central Riffians, is similar to that of the most dolichocephalic European groups, Scandinavians and Iberians, and neither of these differ greatly from the other.

TABLE 20. MINIMUM FRONTAL DIAMETER

	No.	M.	σ	V.
Total Rif	529	106.18 ± .14	4.94 ± .10	4.65 ± .10
Total Senhaja	197	105.36 ± .22	4.42 ± .13	4.20 ± .13
Ghomara	73	104.66 ± .37	4.65 ± .26	4.44 ± .25
Sheshawen	28	106.11 ± .66	5.14 ± .46	4.84 ± .44
Arabs	93	104.54 ± .35	4.97 ± .25	4.75 ± .24
Shluh	277	103.18 ± .18	4.53 ± .13	4.44 ± .13
Kebdana		107.00 ± .68	3.80 ± .48	3.55 ± .45
Mazuza		107.67 ± .44	3.59 ± .31	3.33 ± .29
Galiya		106.58 ± .38	4.15 ± .27	3.89 ± .25
Nomads		107.14 ± .57	4.52 ± .40	4.22 ± .37
Said		108.53 ± .61	4.92 ± .43	4.53 ± .39
Ulishk		107.96 ± .44	4.74 ± .31	4.39 ± .29
Temsaman		106.16 ± .52	5.39 ± .37	5.08 ± .35
Tuzin		106.76 ± .49	4.48 ± .35	4.20 ± .42
Gzennaya		105.75 ± .48	5.27 ± .34	4.98 ± .32
Urriaghel		103.75 ± .36	4.32 ± .26	4.16 ± .25
Amart		104.14 ± .87	6.04 ± .61	5.80 ± .59
Targuist		104.72 ± .99	6.24 ± .70	5.96 ± .67
Bokoya		105.88 ± .55	3.98 ± .39	3.76 ± .37
Maritimes		105.09 ± .74	5.14 ± .52	4.89 ± .50
Zarket		106.00 ± .71	5.24 ± .50	4.94 ± .47
Bu Nsar		106.04 ± .57	4.21 ± .40	3.97 ± .38
Hamid		105.50 ± .69	4.36 ± .49	4.13 ± .46
Taghzuth		105.92 ± .42	4.79 ± .30	4.52 ± .28
Ktama		103.14 ± .58	4.05 ± .41	3.93 ± .40
Ar. Sen		105.40 ± .50	5.11 ± .36	4.85 ± .34

COMPARATIVE DATA

North Africa	Authority	No.	M.	σ	V.
Shawia	Papillault	15	106.4		
Kabyles	d'Hercourt	13	107		
Algerian Arabs	d'Hercourt	18	108		
Mzabites	Amat	50	110		
Asia					
Irak Bedawin †	Ehrich	33	104.15 ± .57	4.90 ± .41	4.71 ± .39
Europe					
Norway, Eidfjord	A. Schreiner	36	103.86		
Norway, Hålandsdal	A. Schreiner	67	104.13 ± .33	3.97	3.82
Western Sweden, V.	L. and L.		104.53 ± .03	4.31 ± .03	4.12
Sweden (total)	L. and L.		104.57 ± .01	4.33 ± .01	4.14
Spain	Barras (W)	78	105.04 ± .45	5.67 ± .28	5.40 ± .27
Spain, Carcereños	Aranzadi (W)	23	105.70		
Old Americans	Hrdlička	247	105.9 ± .24		
Norway, Valle	A. Schreiner	118	106.64 ± .36	3.87	3.63
Faroe Islands	L. and L.		109.2		

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Skeletal Material	Authority	No.	M.	M + 5.7 mm.
Azores, modern	Lajard (H)	..	93.0	98.7
Teneriffe	Hooton	..	96.1	101.8
Merovingians, Boulonnais	Hamy (H)	..	97.0	102.7
Graverow Saxons	Gildemeister (H)	..	97.2	102.9
Anglo-Saxon	Morant	59	97.3	103.0
Merovingians, Muids	Hamy (H)	..	98.0	103.7
Whitechapel	Morant	132	98.0 [1]	103.7
English and Scotch Iron Age	Morant	45	98.0	103.7
Teneriffe, modern	Hooton	..	98.5	104.2
Moorfields	Macdonnell (H)	..	98.5	104.2
English and Scotch Neolithic	Morant	41	98.7	104.4
Long Barrow	Schuster (H)	..	98.9	104.6

[1] Macdonnell (H) obtains the same.

DIFFERENCES BETWEEN MEANS, IN MILLIMETERS

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Spain	Norway	Sweden
Rif	--	..	..	..	..	..	..	..	2.03	..	1.14	..	1.61
Senhaja	.82	--	..	..	..	..	..	..	1.21	..	.32	..	.79
Ghomara	1.52	.70	--	..	..	..	..	..	.51	..	.38	..	.09
Sheshawen	.07	.75	1.45	--	..	..	..	..	1.96	..	1.07	..	1.54
Arabs	1.64	.82	.12	1.57	--	..	..	..	.39	..	.50	..	.03
Shluh	3.00	2.18	1.48	2.93	1.36	--	..	..	.97	..	1.86	..	1.39

DIFFERENCE OF MEANS EQUALS X TIMES P.E.

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Spain	Norway	Sweden
Rif	--	..	..	..	..	..	..	..	3.44	..	2.43	..	11.50
Senhaja	3.15	--	..	..	..	..	..	..	1.98	..	.64	..	3.59
Ghomara	3.90	1.63	--	..	..	..	..	..	.75	..	.66	..	.24
Sheshawen	.10	1.07	1.91	--	..	..	..	..	2.23	..	1.34	..	2.33
Arabs	4.32	1.91	.24	2.09	--	..	..	..	.58	..	.88	..	.09
Shluh	13.04	7.79	3.61	3.76	3.49	--	..	..	1.62	..	3.88	..	7.72

FRONTO-PARIETAL INDEX

This ratio, expressing the relationship between the minimum frontal diameter and the maximum head breadth, formerly neglected, is becoming of increasing importance in the eyes of modern physical anthropologists. It expresses, more delicately than the cephalic index, the degree of broad-headedness of a group, since the minimum frontal is more constant than the head length, considering humanity as a whole. A high fronto-parietal index indicates a skull relatively similar in breadth to the forehead, and a low one a head relatively much broader. The highest values are found among Australoids and dolichocephalic European groups, and the lowest among such extreme brachycephals as Mongoloids and Armenoids, and European Alpines.

In the Rif, this index is very high, showing a relatively close proximity between the two component measurements. It is the highest among the Riffians of all our Moroccan groups, and is significantly similar to the Senhaja alone. The less dolichocephalic groups, the Sheshawen and Ghomara, show the lowest values, and the others are intermediate.

Carrying our comparison to Algeria, we find the Moroccans inferior in this ratio to all of their easterly neighbors indicated, coming closer to the Kabyles and Shawia than to the others. The Asiatic Bedawin fall within the Moroccan range, affiliating themselves most closely with the lower extreme.

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TABLE 21. FRONTO-PARIETAL INDEX

	No.	M.	σ	V.
Total Rif	529	72.88 ± .09	3.01 ± .06	4.13 ± .09
Total Senhaja	197	72.84 ± .16	3.17 ± .10	5.01 ± .15
Ghomara	73	71.41 ± .25	3.18 ± .19	4.45 ± .26
Sheshawen	28	71.29 ± .42	3.28 ± .30	4.60 ± .42
Arabs	93	72.00 ± .22	3.20 ± .16	4.44 ± .22
Shluh	277	71.78 ± .13	3.27 ± .09	4.56 ± .13

Comparative Data

North Africa	Authority	No.	M.	σ	V.
Kabyles *	d'Hercourt	13	73.17		
Shawia *	Papillault	15	73.79		
Mzabites	Amat	50	74.8		
Algerian Arabs *	d'Hercourt	18	75.28		
Asia					
Irak Bedawin †	Ehrich	33	71.21 ± .40	3.40 ± .28	4.78 ± .40
Europe					
Norway, Eidfjord	A. Schreiner	37	67.84 ± .27	2.46	3.63
Norway, Hålandsdal	A. Schreiner	98	67.85 ± .16	2.37	3.49
Norway, Valle	A. Schreiner	158	68.97 ± .14	2.59	3.76
Old Americans *	Hrdlička	247	68.54		
Iceland *	Hannesson (L & L)		69.1		
Sweden *	L. and L.		69.51		
Faroe Islands *	(L and L)		70.5		
Spain	Barras (W)	57	70.73 ± .38	4.26 ± .26	6.02 ± .36
Carcereños	Aranzadi (W)	23	70.80		

Skeletal Material	Authority	No.	M.	M. (calculated)
Teneriffe	Hooton	247	67.6	68.3
Azores, modern	Lajard (H)	20	68.6	69.2
Anglo-Saxon	Morant	59	68.8	69.3
Moorfields	Macdonnell [1] (H)	..	68.9	69.7
Merovingians, Muids	Hamy (H)	26	69.0	69.6
Merovingians, Boulonnais	Hamy (H)	20	69.3	69.9
English and Scotch Iron Age	Morant	45	69.3	69.8
Graverow Saxons	Gildemeister (H)	46	69.6	70.2
Whitechapel	Morant [2]	135	69.7	70.2
Long Barrow	Schuster [1] (H)	..	70.6	71.1
English and Scotch Neolithic	Morant	41	71.0	71.6
				M. + .6
Parisians, modern	(Hrdlička)	..	68.8	69.4
African Negroes	(Hrdlička)	..	70.0	70.6
Hottentots and Bushmen	(Hrdlička)	..	72.7	73.3
Australians	(Hrdlička)	..	76.6	77.2

[1] Parsons also. [2] Macdonnell also.

Differences between Means, in Index Points

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Spain	Norway	Sweden
Rif	--	..	..	..	..	..	..	..	1.67	..	2.15	..	..
Senhaja	.04	--	..	..	..	..	..	..	1.63	..	2.11	..	..
Ghomara	1.47	1.43	--	..	..	..	..	..	.20	..	.63	..	..
Sheshawen	1.59	1.55	.12	--	..	..	..	..	.08	..	.56	..	..
Arabs	.88	.84	.59	.81	--	..	..	..	.79	..	1.27	..	..
Shluh	1.10	1.06	.37	.49	.22	--	..	..	.57	..	1.05		..

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DIFFERENCE OF MEANS EQUALS X TIMES P.E.

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Spain	Norway	Sweden
Rif	--	..	..	..	..	..	..	..	5.57	..	5.51	..	..
Senhaja ...	.12	--	..	..	..	..	..	..	5.09	..	5.15	..	..
Ghomara ..	5.44	4.77	--	..	..	..	..	..	.42	..	1.40	..	..
Sheshawen .	3.70	3.45	.24	--	..	..	..	..	.16	..	.98	..	..
Arabs	3.66	3.11	1.79	1.51	--	..	..	..	2.19	..	2.89	..	..
Shluh	6.88	5.05	1.32	1.11	.85	--	..	..	1.84	..	2.63	..	..

Among the Europeans of today, this ratio is everywhere, as far as we know, lower than that of the Riffians, due to the historic increase in head breadth among these peoples. There seems little difference between the Nordics and Mediterraneans in this respect, but what difference there is favors the latter.

In using the skeletal material available, I have calculated new indices from the means obtained by adding the average thickness of the soft parts involved, after Czekanowski. In using Hrdlička's data I have added 6 mm. to each skeletal mean, since that is the average difference between the two means calculated from the data of Hooton, Morant, and Parsons.

This calculation reveals practically the same condition among ancient as among modern Nordic groups. The only ancient dolichocephalic groups at all similar are the Neolithic Long Barrow peoples of Britain. Hrdlička's data place the Negroes in the same class with the longer headed Europeans, and the markedly dolichocephalic Bushman-Hottentot and Australian groups ahead of our Moroccans. We can only consider the condition of the Riffians in this index as that of an early European dolichocephalic group. Other measurements and indices, notably those of the nose, preclude any negroid or australoid hypothesis.

BIZYGOMATIC DIAMETER

In this measurement the Moroccans fall within the range of the northern and southern mesocephalic Europeans. Sheshawen and the Rif possess the greatest diameters, and the Shluh notably the least, with the Arabs, Ghomara, and Senhaja, following the Sheshawen and Riffian means. The Riffian mean is significantly different from all but Sheshawen, and the Shluh significantly below all of the other groups.

Looking at the Rif internally, we find the greatest dimensions located in the eastern tribes, and concentrated in Beni Said. The Central Riffians, although by no means uniform, are in general lower, while the Maritime tribes and Targuist, with traditional increments of Arab blood, are higher. This is carried over into Zarket and Beni Bu Nsar, whereas the other Senhajan tribes agree more with the Central Riffian and Ghomaran figure.

In comparing our series with the Algerians, we are confronted by a dual set of means, Amat, Papillaut, and Viré obtaining low values comparable to the Central Riffians, whereas Randall-Mac Iver and Wilkin obtain values more like those of the Eastern Riffian tribes.

The Negroes in general run slightly higher than the Riffians, although not greatly so. The same is true of the series of Mesopotamian Bedawin.

Among the modern Scandinavians and Iberians we find at last a measurement in which there is some differentiation. The two available Spanish means are both within range of 133 mm., whereas those for Scandinavia, the British Isles, and America run from 133 mm. as a minimum upwards. The normal Nordic mean, without considering overgrown groups

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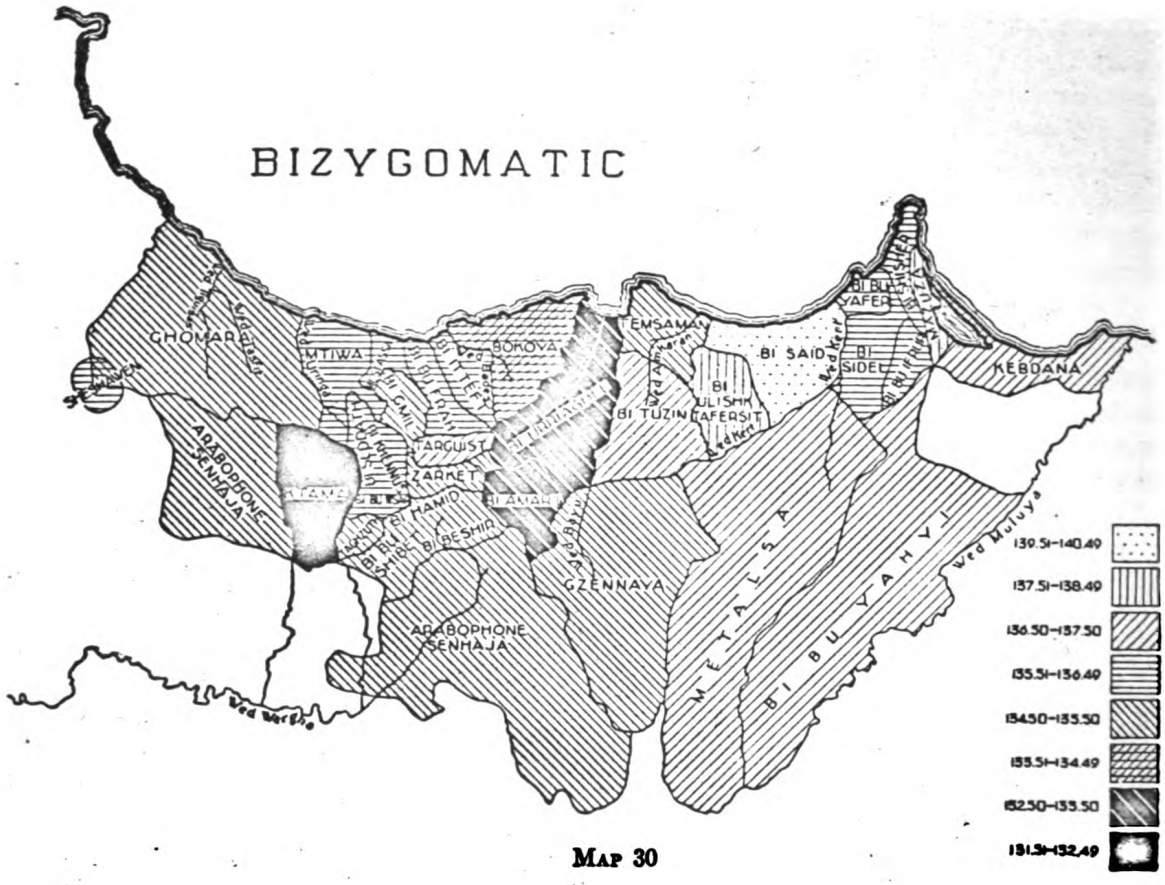
or those with large brachycephalic increments, seems to lie between 136 and 137 mm. In this measurement, therefore, the Riffians clearly approximate the Nordic rather than the Mediterranean figure. This is brought about, however, by the inclusion of the broader faced eastern tribes. The Central tribes, hovering about 134–135, seem to touch the lower Nordic range, or to be intermediate between the Nordics and Mediterraneans.

In arranging the adjoining skeletal groups for comparison, I added to each mean 6.5 mm., or double the thickness of the soft parts in the region measured, as determined by



MAP 30

Czekanowski's mean. Using this correction, we find the Spaniards at about the same figure as in the living groups, particularly that small one of Aranzadi, whereas the Nordic groups appear somewhat in excess of the modern measurements of Scandinavians, approaching the outlying island populations of today. It is curious that the Long Barrow neolithic English should attain the high figure of 140 mm. and over.

The groups which compare most favorably with the Riffians are the mediaeval Londoners. Hooton's Guanches show themselves broader faced than the Riffians. It is, however, possible that Czekanowski's figures for the thickness of the soft parts over the zygomata are too high, since the corpses which he used, being Swiss and probably largely Alpine in race, perhaps ran fleshier than the leaner Nordics and Mediterraneans.

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TABLE 22. BIZYGOMATIC DIAMETER

	No.	M.	σ	V.
Total Rif	529	136.02 ± .15	5.23 ± .11	3.84 ± .08
Total Senhaja	197	134.76 ± .26	5.10 ± .15	3.79 ± .11
Ghomara	73	135.07 ± .39	4.90 ± .29	3.63 ± .21
Sbeshawen	28	136.21 ± .55	4.29 ± .39	3.15 ± .28
Arabs	93	135.14 ± .33	4.75 ± .24	3.52 ± .17
Shluh	277	132.20 ± .21	5.23 ± .15	3.96 ± .11
Kebdana		136.71 ± .57	3.15 ± .40	2.30 ± .29
Mazuza		137.53 ± .42	3.44 ± .30	2.50 ± .22
Galiya		135.58 ± .56	6.12 ± .39	4.51 ± .29
Nomads		136.72 ± .57	4.55 ± .40	3.33 ± .29
Said		140.00 ± .67	5.34 ± .47	3.81 ± .34
Ulishk		138.19 ± .44	4.68 ± .31	3.39 ± .22
Temsaman		134.94 ± .47	4.90 ± .33	3.63 ± .25
Tuxin		136.63 ± .54	4.98 ± .39	3.64 ± .28
Gzennaya		135.33 ± .49	5.36 ± .34	3.96 ± .25
Urriaghel		133.30 ± .47	5.53 ± .33	4.16 ± .25
Amart		132.73 ± .80	5.56 ± .56	4.19 ± .43
Targuist		136.72 ± 1.10	6.93 ± .78	5.07 ± .57
Bokoya		134.00 ± .63	4.58 ± .45	3.42 ± .33
Maritimes		136.23 ± .82	5.68 ± .58	4.17 ± .42
Zarket		135.04 ± .62	4.60 ± .44	3.41 ± .32
Bu Nsar		136.32 ± .56	4.14 ± .40	3.04 ± .29
Hamid		134.50 ± .60	3.79 ± .43	2.82 ± .32
Taghzuth		134.92 ± .50	5.74 ± .35	4.25 ± .26
Ktama		132.18 ± .72	5.02 ± .51	3.80 ± .39
Ar. Sen		135.00 ± .50	5.03 ± .35	3.73 ± .26

Comparative Data

North Africa	Authority	No.	M.	σ	V.
Msabites	Amat	50	133.0		
Shawia	Papillault	15	133.4		
Brunet Kabyles	Viré	43	133.70		
Blood Kabyles	Viré	22	134.38		
Shawia	R.-Mac I. and W.	57	136.37 ± .47	5.31 ± .36	4.58 ± .29
Kabyles	R.-Mac I. and W.	50	138.32 ± .43	4.47 ± .30	3.23 ± .22
Africa south of the Sahara					
Fiot	Poutrin (M)		125.0		
Batwa	Csekanowski (M)		135.0		
Bugu	Girard (M)		136.0		
Sudanese *	B. and C.		136.77		
Fan	Poutrin (M)		137.0		
East Africans	Weissenberg (M)		137.0		
West Coast	Weninger	100	137.33 ± .37	5.44 ± .26	3.96 ± .19
Asia					
Irak Bedawin	Ehrich	33	137.73 ± .53	4.55 ± .38	3.30 ± .27
Europe					
Spain	Barras (W)	78	133.14 ± .47	5.84 ± .29	4.39 ± .22
Spain, Carcerefios	Aranzadi (W)	23	133.8		
Eastern Norway	(L. and L.)		133.8		
Western Sweden, V.	L. and L.		135.92 ± .04	4.75 ± .03	3.50
Sweden (total)	L. and L.		136.02 ± .01	4.84 ± .01	3.56
Norway, Opland	B. and S.	739	136.37 ± .14	5.52	4.05

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	Authority	No.	M.	σ	V.
English criminals	Goring	2,348	136.5		
Norway (total)	B. and S.	11,766	137.27 ± .04	5.52	4.02
Old Americans	Hrdlička	247	138.6		
Iceland	Hannesson (L & L)		139.6		
Norway, Eidfjord	A. Schreiner	36	141.30		
Norway, Hålandsdal	A. Schreiner	67	141.31 ± .42	5.07	3.59
Norway, Valle	A. Schreiner	120	142.90 ± .27	4.39	3.07
Runo Island	Hilden (L & L)		143.3		
Faroe Islands	(L and L)		145.4		

Skeletal Material	Authority	No.	M.	M. + 6.5 mm.
Spanish	Hoyos Sainz (H)		127.5	134.0
Moorfields	Parsons [1]		129.0	135.5
Whitechapel	Parsons		130.05	
Whitechapel	Morant	43	130.1	136.6
English and Scotch Neolithic	Morant	41	130.4	136.9
English and Scotch Iron Age	Morant	55	130.6	137.1
Orotava, modern	(Hooton)		130.6	137.1
Teneriffe, "Nordics"	Hooton		131.2	137.7
Franks of Hainaut	Houzé (H)	45	132.0	138.5
Teneriffe	Hooton	247	132.2	138.7
Scotch	(Hooton)		132.2	138.7
Anglo-Saxon	Morant	34	133.3	139.8
Long Barrow	Schuster (H)		134.0	140.5
Long Barrow	Parsons		134.6	141.1

[1] Macdonnell (H) also.

DIFFERENCES BETWEEN MEANS, IN MILLIMETERS

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Spain	Norway	Sweden
Rif	--	..	..	..	..	..	2.30	.35	1.71	1.31	2.88	1.25	..
Senhaja	1.26	--	..	..	..	..	3.56	1.61	2.97	2.57	1.62	2.51	1.26
Ghomara	.95	.31	--	..	..	..	3.25	1.30	2.66	2.26	1.93	2.20	.95
Sheshawen	.19	1.45	1.14	--	..	..	2.11	.16	1.52	1.12	3.07	1.06	.19
Arabs	.88	.38	.07	1.07	--	..	3.18	1.23	2.59	2.19	2.00	2.13	.88
Shluh	3.82	2.56	2.87	4.01	2.94	--	6.12	4.17	5.53	5.13	.94	5.07	3.82

DIFFERENCE OF MEANS EQUALS X TIMES P.E.

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Spain	Norway	Sweden
Rif	--	..	..	..	..	..	5.00	.71	3.05	3.28	5.88	7.81	..
Senhaja	4.20	--	..	..	..	..	7.12	2.98	5.03	5.71	3.00	9.65	4.84
Ghomara	2.26	.66	--	..	..	..	5.60	2.13	4.03	4.93	3.16	5.64	2.44
Sheshawen	.33	2.38	1.68	--	..	..	3.02	.22	2.00	1.70	4.26	1.93	.35
Arabs	2.44	.90	.14	1.67	--	..	5.89	2.16	4.18	4.38	3.51	6.46	2.67
Shluh	14.69	8.00	6.52	6.80	7.54	--	12.39	8.18	9.67	11.93	1.84	23.05	1.82

CEPHALO-FACIAL INDEX

This index, like the fronto-parietal, is a useful criterion of the relative breadth of the head. It is, however, less fine since the breadth of the zygomata is more variable than the minimum frontal diameter, and a broad head with flaring zygomata would yield a comparable index to a narrow head with compressed zygomata. Among Europeans, however, it is indicative of the degree to which a group has been affected by increasing brachycephaly.

The Riffians, with a high index, show narrow dimensions of the face and of the head, with relatively little difference between them, as one would expect in a pure dolichocephalic group of European stock. Among our six groups the most marked in this respect are the

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Rif, Senhaja, and Arabs, with the Sheshawen group touching the opposite extreme. The Algerians seem generally lower in this index, although not greatly so. What difference there is reflects the greater head breadth of the Algerian peoples.

Weninger's Negroes are both absolutely and significantly different from all Moroccan groups. Values of XP.E. which exceed 10 in this index indicate a significant superiority of the Negroes. The Asiatic Arabs show a slight excess over the Riffian, Senhajan, and Arab groups, not comparable in degree to that of the Negroes.

When we turn to the European peoples, we find the closest parallels to the Riffians among the marginal Nordic groups. The Spaniards, with the lowest index, would indicate that the Mediterranean group falls below the Nordic in this respect, except for Hrdlička's series of 50 South Italian immigrants.

The series of skeletal measurements are directly comparable to the indices taken from the living, since there is little difference between the thickness of the soft parts over the parietals and the zygomatic arches. The list of corrected means, computed from the meas-

TABLE 23. CEPHALO-FACIAL INDEX

	No.	M.	σ	V.
Total Rif	529	93.30 ± .09	3.20 ± .07	3.43 ± .07
Total Senhaja	197	93.10 ± .17	3.46 ± .10	3.72 ± .11
Ghomara	73	92.21 ± .22	2.77 ± .16	3.00 ± .18
Sheshawen	28	91.36 ± .41	3.25 ± .29	3.56 ± .32
Arabs	93	93.06 ± .22	3.22 ± .16	3.46 ± .17
Shluh	277	92.21 ± .15	3.54 ± .10	3.84 ± .11

COMPARATIVE DATA

North Africa	Authority	No.	M.	σ	V.
Mzabites *	Amat	50	90.48		
Shawia †	R.-Mac I. and W.	57	91.96 ± .25	2.85 ± .18	3.10 ± .20
Shawia *	Papillault	15	92.59		
Blond Kabyles *	Viré	22	92.62		
Kabyles †	R.-Mac I. and W.	50	92.68 ± .37	3.84 ± .26	4.14 ± .28
Brunet Kabyles *	Viré	43	93.28		
Africa south of the Sahara					
West Coast	Weninger	100	96.38 ± .24	3.58 ± .17	3.71 ± .18
Asia					
Irak Bedawin †	Ehrich	33	94.21 ± .38	3.29 ± .27	3.49 ± .29
Europe					
Spain	Barras (W)	56	89.46 ± .31	3.44 ± .20	3.85 ± .23
Spain, Carcereños *	Aranzadi (W)	23	89.56		
Eastern Norway *	(L and L)		90.16		
Irish	Hrdlička	35	90.2		
Norway (total)	B. and S.		90.23		
Old Americans	Hrdlička	726	90.3		
Sweden (total) *	L. and L.		90.41		
Trondelagen *	(L and L)		90.84		
English	Hrdlička	20	91.1		
Runo Island *	Hilden (L & L)		91.80		
South Italians	Hrdlička	50	92.0		
Norway, Eidfjord	A. Schreiner	37	92.39 ± .35	3.14	3.40
Norway, Hålandsdal	A. Schreiner	52	92.40 ± .23	2.48	2.69
Norway, Valle	A. Schreiner	96	92.65 ± .20	2.90	3.14
Faroe Islands *	(L and L)		93.87		
Iceland *	Hannesson (L & L)		94.48		

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Skeletal Material	Authority	No.	M.	From corrected means M.
Moorfields *	Parsons		90.2	90.3
Spanish *	Hoyos Sainz (H)		92.0	92.4
English and Scotch Iron Age *	Morant	102–55	92.4	92.4
Whitechapel *	Morant	135–43	92.5	92.4
Franks of Hainaut *	Houzé (H)	45	92.7	92.7
Teneriffe *	Hooton	247	93.0	93.0
English and Scotch Neolithic *	Morant	128–41	93.9	93.8
Anglo-Saxon *	Morant	103–34	94.1	94.0
Long Barrow *	Parsons		96.1	95.9

DIFFERENCES BETWEEN MEANS, IN INDEX POINTS

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Spain	Norway[1]	Sweden
Rif	--	..	..	..	..	..	.62	1.34	.91	3.08	3.84	3.07	..
Senhaja	.20	--	..	..	..	..	.42	1.14	1.11	3.28	3.64	2.87	..
Ghomara	1.09	.89	--	..	..	..	.47	.25	2.00	4.17	2.75	1.98	..
Sheshawen	1.94	1.74	.85	--	..	..	1.32	.60	2.85	5.02	1.90	1.13	..
Arabs	.24	.04	.85	1.70	--	..	.38	1.10	1.15	3.32	3.60	2.83	..
Shluh	1.09	.89	..	.85	.85	--	.47	.25	2.00	4.17	2.75	1.98	..

[1] Mean given without σ or P. E.

DIFFERENCE OF MEANS EQUALS X TIMES P.E.

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Spain	Norway	Sweden
Rif	--	..	..	..	..	..	1.63	4.96	2.33	11.84	12.00	..	..
Senhaja	1.05	--	..	..	..	..	1.02	3.47	2.64	11.30	10.40	..	..
Ghomara	4.54	3.18	--	..	..	..	1.09	.66	4.54	12.63	7.24	..	..
Sheshawen	4.62	3.55	1.81	--	..	..	2.40	1.25	5.09	10.46	3.73	..	..
Arabs	1.00	.14	2.74	3.62	--	..	.88	2.90	2.61	10.06	9.48	..	..
Shluh	6.41	3.87	..	1.93	3.15	--	1.18	.86	4.88	14.89	8.09	..	..

urements corrected by adding Czekanowski's constants, shows this. The Europeans in question show that in earlier times they conformed more closely to the Berber values of this index than do all but the marginal groups today. Hooton's Canary Island series likewise falls in line with the present material. Like so many other measurements and indices, this index demonstrates a close connection with early rather than with modern dolichocephalic European groups.

ZYGO-FRONTAL INDEX

This index, which shows the relationship existing between the minimum-frontal and the bizygomatic diameters, indicates the relative prominence of the malars, due to the general stability of the former measurement. The Riffians show their good development of the forehead breadth, and narrowness in the malar region, by this index. The Riffians and Senhaja have the highest indices of the six groups, the Sheshawen series follows them, whereas the Ghomara, Arabs, and Shluh fall significantly below.

TABLE 24. ZYGO-FRONTAL INDEX

	No.	M.	σ	V.
Total Rif	528	78.25 ± .11	3.62 ± .08	4.63 ± .10
Total Senhaja	197	78.29 ± .18	3.51 ± .11	4.48 ± .13
Ghomara	73	77.40 ± .25	3.22 ± .19	4.16 ± .24
Sheshawen	28	77.96 ± .41	3.21 ± .29	4.12 ± .37
Arabs	93	77.41 ± .24	3.42 ± .17	4.42 ± .22
Shluh	277	77.07 ± .15	3.64 ± .10	4.72 ± .14

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Comparative Data

North Africa	Authority	No.	M.	σ	V.
Shawia *	Papillault	15	79.76		
Mzabites *	Amat	50	82.71		
Asia					
Irak Bedawin †	Ehrich	33	74.88 ± .35	3.00 ± .25	4.01 ± .33
Europe					
Norway, Eidfjord	A. Schreiner	37	73.66 ± .42	3.83	5.19
Norway, Hålandsdal	A. Schreiner	67	73.66 ± .21	2.52	3.43
Norway, Valle	A. Schreiner	98	74.31 ± .19	2.72	3.66
Faroe Islands	(L and L)		75.1		
Old Americans *	Hrdlička	247	76.41		
Iceland	Hannesson (L & L)		76.9		
Sweden (total)	L. and L.		76.97 ± .03	2.93 ± .02	3.81
Alvsborgs län	L. and L.		77.34 ± .06	2.82 ± .04	3.64
Spain, Carcereños *	Aranzadi (W)	23	79.00		
Spain	Barras (W)	77	79.01 ± .34	4.30 ± .21	5.44 ± .27
Trondelagen	(L and L)		80.0		
Spain	Barras, 1923 (W)	206	81.09 ± .27		

Skeletal Material	Authority	No.	M.	From corrected means M.
Teneriffe *	Hooton	247	72.7	73.4
Anglo-Saxon *	Morant	35–59	73.0	73.7
Long Barrow *	Schuster (H)		73.5	74.1
Merovingians *	Frizzi (M)		74.0	
Negroes *	Manouvrier (M)		74.2	
English and Scotch Iron Age *	Morant	55–45	75.0	75.6
Whitechapel *	Morant	43–132	75.4	75.9
English and Scotch Neolithic *	Morant	41	75.7	76.2
Moorfields *	Macdonnell (H) Parsons		76.4	76.8

Differences between Means, in Index Points

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Spain	Norway	Sweden
Rif	--	..	..	..	..	..	..	..	3.37	..	.76	..	1.38
Senhaja	.04	--	..	..	..	..	..	..	3.41	..	.72	..	1.42
Ghomara	.85	.89	--	..	..	..	..	..	2.52	..	1.61	..	.43
Sheshawen	.29	.33	.56	--	..	..	..	..	3.08	..	1.05	..	.99
Arabs	.84	.88	.01	.54	--	..	..	..	2.53	..	1.60	..	.44
Shluh	1.18	1.22	.33	.89	.34	--	..	..	2.19	..	1.94	..	.10

Difference of Means equals X times P.E.

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Spain	Norway	Sweden
Rif	--	..	..	..	..	..	..	..	9.11	..	1.83	..	12.54
Senhaja	.19	--	..	..	..	..	..	..	8.74	..	1.89	..	7.89
Ghomara	3.15	2.87	--	..	..	..	..	..	5.86	..	3.83	..	1.72
Sheshawen	.69	7.34	1.17	--	..	..	..	..	5.22	..	1.98	..	2.42
Arabs	3.23	2.93	.03	1.12	--	..	..	..	6.02	..	3.81	..	1.83
Shluh	6.21	5.31	1.14	2.02	1.21	--	..	..	5.76	..	5.24	..	.62

Comparative data for this index are exceedingly rare. Our two Algerian groups indicate a higher ranking in Algeria than in Morocco. The Irak Bedawin fall considerably lower, and in Europe the Nordic groups tend to fall below and the Spanish above the Riffian figure. Of the Moroccan groups, the Rif and Senhaja are most like the Spanish; and the Shluh, Ghomara, and Arabs most like the Swedes. The highest län in Sweden, however, falls close

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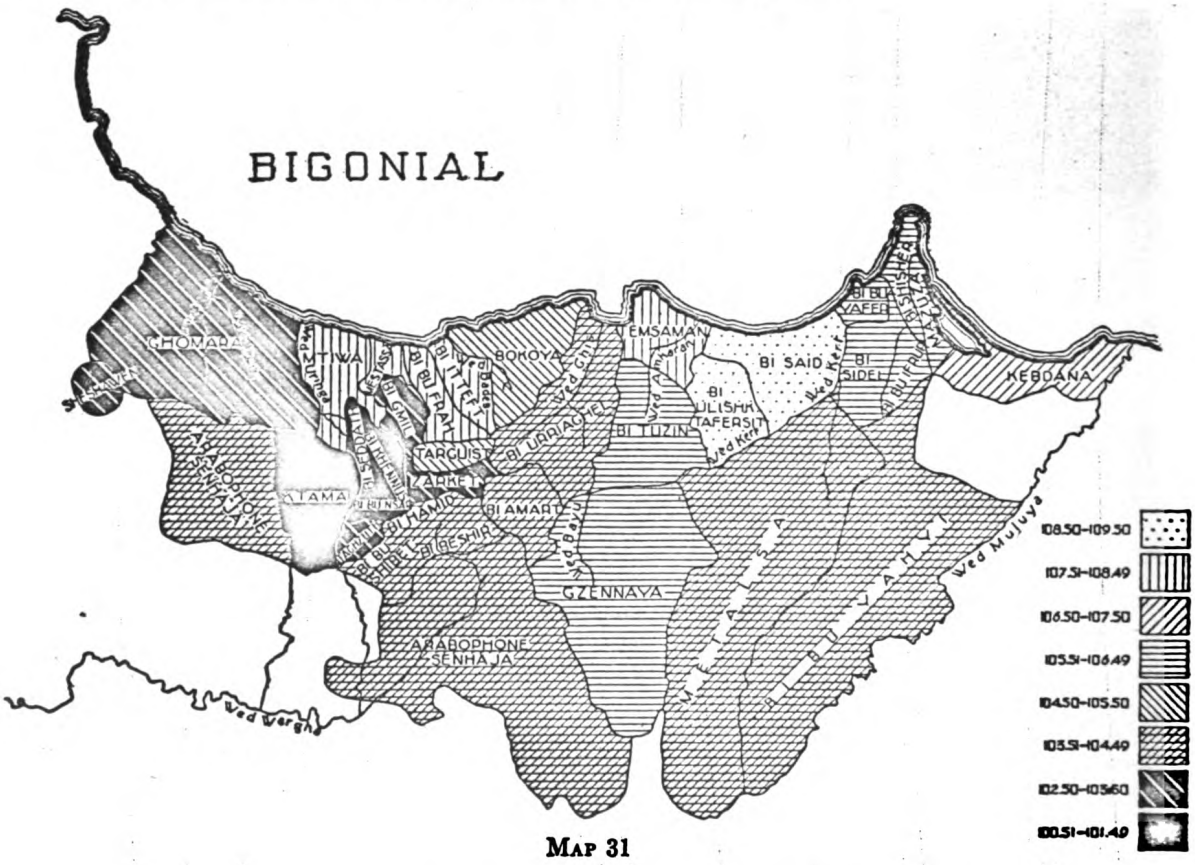
to the Riffian figure, while Trondelagen notably exceeds it. In general, there would seem to be, at last, a difference between modern Scandinavians and Iberians in one head or face proportion.

The skeletal material, if our correction based on Czekanowski is valid, shows a slightly lower figure in the older than in the modern groups, indicating either an increase in forehead breadth or a decrease in face breadth. The groups coming closest to our Moroccans are the British neolithic, Iron Age and mediaeval series, in other words, those preceding and following the Anglo-Saxon invasions of England. The Negroes, judging by Manouvrier's series, given by Martin without number or provenience, fall more in the Nordic class, as do the Canarians.

BIGONIAL DIAMETER

The measurement of the diameter between the two gonial angles of the lower jaw has been neglected by most physical anthropologists. Few comparative data exist, and these differ to such an extent that the question of technique may arise.



MAP 31

The six Moroccan groups divide into three classes: the Riffians, with a bigonial of 106 mm.; the Senhaja, Ghomara, Sheshawen, and Arab groups, attaining the moderate figures of 102 and 103 mm.; and the Shluh, who attain only 100 mm. All of the Riffian tribal groups are in excess of all the other Moroccans except for the Beni Hamid and

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Arabophone Senhaja who exceed the Beni Amart and Nomads of the Rif. The low figure of the Nomads, thrust into the flank of the highest bigonial diameters in Morocco, cannot fail to hold a certain significance. Although the Central Riffians are lower than the high center which characterizes Beni Said, Temsaman, and Beni Ulishk, they are still higher than the means of other Moroccan groups.

Turning to Algeria, we find the groups measured by d'Hercourt to reach the lower Moroccan range, and those measured by Randall-Mac Iver and Wilkin to exceed them by 3 and 4 mm. One could hardly expect samples of the same group measured by two different investigators to differ 4 mm. in this dimension unless there were some difference in technique or a decided qualification in samples chosen. All that we can say at present is that the Riffians appear to exceed these Algerian groups no matter whose technique we accept.

TABLE 25. BIGONIAL DIAMETER

	No.	M.	σ	V.
Total Rif	530	106.13 ± .18	6.28 ± .13	5.92 ± .12
Total Senhaja	196	102.91 ± .30	6.02 ± .18	5.85 ± .18
Ghomara	73	103.25 ± .51	6.49 ± .38	6.29 ± .37
Sheshawen	28	103.39 ± .85	6.65 ± .60	6.43 ± .58
Arabs	93	102.43 ± .45	6.44 ± .32	6.29 ± .31
Shluh	277	100.37 ± .24	5.95 ± .17	5.93 ± .17
Kebdana		106.50 ± 1.18	6.57 ± .84	6.17 ± .79
Mazuza		106.23 ± .70	5.67 ± .49	5.34 ± .46
Galiya		105.62 ± .50	5.48 ± .35	5.19 ± .33
Nomads		103.54 ± .64	5.05 ± .46	4.88 ± .44
Said		109.47 ± .82	6.68 ± .58	6.10 ± .53
Ulishk		108.51 ± .52	5.58 ± .37	5.14 ± .34
Temsaman		108.34 ± .75	7.78 ± .53	7.18 ± .49
Tusin		105.76 ± .49	4.47 ± .36	4.23 ± .33
Gzennaya		105.51 ± .55	6.08 ± .39	5.76 ± .37
Urriaghel		104.19 ± .53	6.28 ± .37	6.03 ± .36
Amart		103.59 ± .59	4.10 ± .42	3.96 ± .40
Targuist		104.94 ± .97	6.07 ± .68	5.78 ± .65
Bokoya		105.12 ± .87	6.31 ± .61	6.00 ± .58
Maritimes		107.54 ± 1.06	7.38 ± .75	6.86 ± .70
Zarket		102.96 ± .95	6.92 ± .67	6.72 ± .65
Bu Nsar		101.08 ± .92	6.84 ± .65	6.77 ± .65
Hamid		104.06 ± .80	5.01 ± .56	4.81 ± .54
Taghzuth		103.05 ± .47	5.35 ± .33	5.19 ± .32
Ktama		100.95 ± .97	6.76 ± .69	6.70 ± .68
Ar. Sen		103.94 ± .58	5.92 ± .41	5.70 ± .40

COMPARATIVE DATA

North Africa	Authority	No.	M.	σ	V.
Kabyles	d'Hercourt	13	101.0		
Algerian Arabs	d'Hercourt	18	102.0		
Shawia †	R.-Mac I. and W.	57	104.63 ± .48	5.34 ± .34	5.10 ± .32
Kabyles †	R.-Mac I. and W.	50	104.90 ± .50	5.22 ± .35	5.10 ± .32
Africa south of the Sahara					
Fiot	Poutrin (M)		97.0		
Fan	Poutrin (M)		99.0		
West Coast	Weninger	100	101.81 ± .41	6.04 ± .29	5.93 ± .28
Asia					
Irak Bedawin †	Ehrich	33	96.00 ± .63	5.41 ± .45	5.62 ± .47

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Europe	Authority	No.	M.	σ	V.
Spain	Barras (W)	78	101.73 ± .48	5.96 ± .30	5.86 ± .29
Sweden (total) *	L. and L.		103.43		
Norway, Opland	B. and S.	739	105.46 ± .15	6.05	5.74
Norway (total)	B. and S.	11,743	106.08 ± .04	5.50	5.18
Old Americans	Hrdlička	247	106.3		
Spain, Carcereños	Aranzadi (W)	23	106.5		
Norway, Eidfjord	A. Schreiner	36	109.22		
Norway, Valle	A. Schreiner	120	109.25 ± .38	6.10	5.58
Norway, Hålandsdal	A. Schreiner	67	112.70 ± .53	6.50	5.77

DIFFERENCE BETWEEN MEANS, IN MILLIMETERS

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Spain	Norway	Sweden
Rif	--	..	..	..	..	..	1.23	1.50	10.13	4.32	4.40	.05	..
Senhaja	3.22	--	..	..	..	..	1.99	1.72	6.91	1.10	1.18	3.27	..
Ghomara	2.88	.34	--	..	..	..	1.65	1.38	7.25	1.44	1.52	2.93	..
Sheshawen	2.74	.48	.14	--	..	..	1.51	1.24	7.39	1.58	1.66	2.79	..
Arabs	3.70	.48	.82	.96	--	..	2.47	2.22	6.43	.62	.70	3.75	..
Shluh	5.76	2.54	2.88	3.02	2.06	--	4.53	4.26	4.37	1.44	1.36	5.81	..

DIFFERENCE OF MEANS EQUALS X TIMES P.E.

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Spain	Norway	Sweden
Rif	--	..	..	..	..	..	2.32	2.94	15.59	9.60	8.63	.26	..
Senhaja	9.20	--	..	..	..	..	3.43	3.02	9.88	2.16	2.07	10.90	..
Ghomara	5.33	.58	--	..	..	..	2.32	1.97	8.96	2.23	2.17	5.86	..
Sheshawen	3.15	.53	.14	--	..	..	1.53	1.27	6.97	1.68	1.69	3.28	..
Arabs	7.71	.89	1.21	1.00	--	..	3.69	3.33	8.36	1.02	1.15	8.33	..
Shluh	19.20	6.68	5.14	3.43	4.04	--	8.24	7.89	6.51	3.00	2.47	23.24	..

The Negro groups, whether we use those of Weninger or of Poutrin, fall definitely below the Riffians, although Weninger's group exceeds the Shluh and shows itself similar to the Arabs, as well as to Ktama and Beni Bu Nsar. Ehrich's Bedawin fall into the lower Negro range, and are dissimilar from all our Moroccan groups, whether of supposed Arab or Berber origin.

The Spaniards, according to Barras, are equivalent in this measurement to Negroes, Arabs, and Shluh; according to Aranzadi, with his one small provincial group, they equal the Riffians. Barras's figure is probably more typical of Spain as a whole. The Norwegians and Old Americans show a near identity to the Riffians, with Mme. Schreiner's figures in excess; the figure of the Swedes, back-calculated from an index in which the number of individuals was not given, may be faulty due to an unequal number in the component elements, since in calculating it by the use of the bizygomatic and zygo-gonial means, I may have employed a much larger sample in the former. Were the latter representative of a local group only whereas the former is of Sweden as a whole such a disparity might well appear. Taking it as it is, the Swedish group falls below the Norwegians and Riffians and equals the Sheshawen and Ghomara figures.

TOTAL FACE HEIGHT

The dimension of the sagittal length of the face, measured from nasion to menton, is sometimes known as the morphological face height to distinguish it from the formerly used physiognomic face height, measured from crinion to menton, and dependent for its validity upon the possession by each individual measured of a full complement of head hair. The

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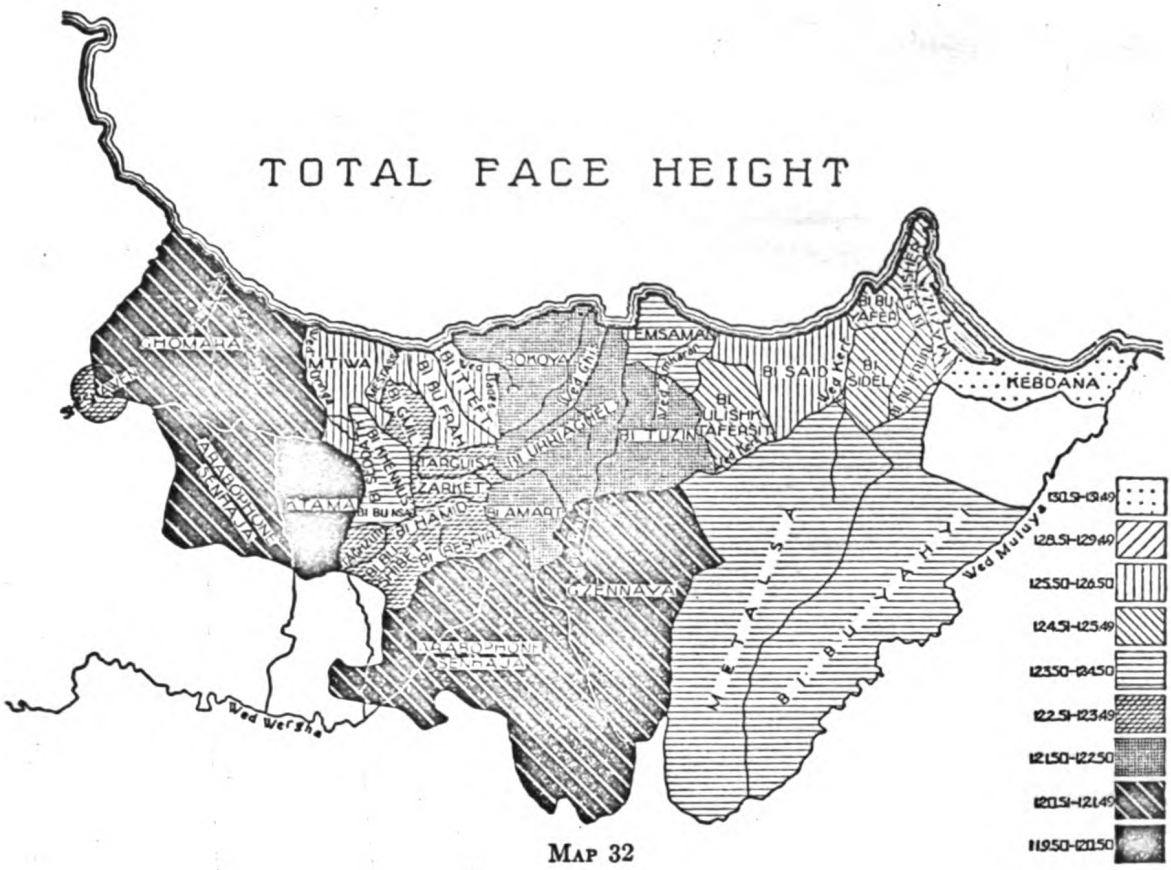
total face height is one of the most variable of human measurements, since it is dependent to a certain extent upon the presence and condition of teeth. While it is desirable to omit taking face length measurements on individuals whose faces have become shortened as a result of tooth loss and consequent jaw absorption, or on account of excessive tooth wear, the dictates of diplomacy and the difficulty of obtaining large enough tribal samples often prevent such an omission.



Map 32

In 1927, while preparing the series then measured as a doctor's thesis, I seriated the available Riffian and Senhajan blanks together, as follows:

Total face height	No.	M.	σ	V.	Diff.	XP.E.
Total series	585	123.74 ± .20	7.17 ± .14	5.79 ± .11		
10–19 teeth gone	60	122.38 ± .62	7.94 ± .49	6.48 ± .40	1.36 ± .62 [1]	2.19
20+ teeth gone	15	119.33 ± 1.89	6.95 ± .86	5.82 ± .72	4.41 ± 1.25	3.53

[1] P.E. = $\frac{2}{3}$ of subgroup times σ of total. This is the probable error of a random sample.

The measures of variation in all these series are similar, hence I considered each a reasonably truthful sample of the whole group. The difference between the group lacking from 10 to 19 teeth and the whole group is not great, and the value of XP.E. so little above the dividing line of 2.00 that it seemed wisest to leave this group in the series without correction, since too many corrections, especially where the need is still in doubt, are a graver fault

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than are too few. In the case of jaws lacking 20 teeth or more, however, the difference is well marked, and a correction merited. Consequently 4 mm. have been added in each case of this nature. Out of 585 individuals of the Rif and Senhaja there were but 15 such individuals, and in other groups and among those subsequently measured the proportions have not increased. This correction has been applied to all Moroccan groups; its effect upon the means has been negligible; its only effect, and that a slight one, has been to restore the measures of variation to their true positions. Were it not for the small numbers in many of the tribes I would have excluded the face length measurements of these individuals entirely.

Judging by the range of this measurement presented in Martin's table, the Riffians are, from a world standpoint, a long faced people. Of the six Moroccan groups, they are the longest faced, significantly longer than all but the Sheshawen people and Arabs. The Shluh have the shortest faces of all, considerably shorter than any of the others.

Looking at the measurement tribally, we see that the longest faces are in the extreme east of the Rif, among the Kebdana and Mazuza, with the shortest ones in the Central Rif. The Maritime tribes have faces longer than the Riffian mean, and the Senhaja vary from the Shluh-like extreme of Ktama to the level of Beni Bu Nsar.

All authorities seem to agree on an Algerian face length inferior to 121 mm., significantly lower than the Riffians, and comparable to the Arabs and Shluh. The Negroes, or those of them of which we know, have much shorter faces, apparently a generic difference, significantly shorter than all our Moroccan groups. The Asiatic Bedawin, on the other

TABLE 26. TOTAL FACE HEIGHT

	No.	M.	σ	V.
Total Rif	530	124.10 ± .21	7.17 ± .15	5.78 ± .12
Total Senhaja	195	122.11 ± .29	5.87 ± .18	4.81 ± .14
Ghomara	73	121.34 ± .51	6.45 ± .38	5.32 ± .31
Sheshawen	28	123.14 ± .75	5.88 ± .53	4.78 ± .43
Arabs	93	123.37 ± .48	6.79 ± .34	5.50 ± .27
Shluh	277	119.74 ± .28	6.89 ± .20	5.75 ± .17
Kebdana		131.21 ± 1.44	8.01 ± 1.02	6.10 ± .74
Mazuza		129.40 ± .80	6.54 ± .57	5.05 ± .48
Galiya		124.91 ± .60	6.65 ± .43	5.32 ± .34
Nomads		123.86 ± .87	6.93 ± .61	5.60 ± .50
Said		125.93 ± .92	7.50 ± .65	5.96 ± .52
Ulishk		125.26 ± .64	6.92 ± .45	5.52 ± .36
Temsaman		123.69 ± .65	6.48 ± .45	5.24 ± .37
Tuzin		122.10 ± .61	5.56 ± .44	4.55 ± .36
Gzennaya		121.15 ± .61	6.83 ± .41	5.64 ± .34
Urriaghel		121.86 ± .56	6.19 ± .37	5.08 ± .30
Amart		122.50 ± 1.17	8.12 ± .83	6.63 ± .67
Targuist		123.28 ± 1.30	8.11 ± .89	6.58 ± .72
Bokoya		121.92 ± .82	5.98 ± .58	4.90 ± .48
Maritimes		125.86 ± 1.10	7.66 ± .78	6.09 ± .62
Zarket		122.64 ± .91	6.76 ± .64	5.51 ± .52
Bu Nsar		124.00 ± .72	5.34 ± .51	4.31 ± .41
Hamid		123.33 ± .71	4.47 ± .50	3.62 ± .41
Taghzuth		122.64 ± .52	5.92 ± .37	4.83 ± .30
Ktama		119.91 ± .67	4.66 ± .47	3.89 ± .40
Ar. Sen		120.53 ± .58	5.86 ± .41	4.86 ± .34

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Comparative Data

North Africa	Authority	No.	M.	σ	V.
Algerian Arabs	d'Hercourt	18	114.0		
Kabyles	R.-Mac I. and W.	49	119.31 ± .69	7.12 ± .48	3.69 ± .25
Kabyles	d'Hercourt	13	120.0		
Shawia	R.-Mac I. and W.	57	120.95 ± .60	6.72 ± .42	5.56 ± .35
Africa south of the Sahara					
East Africa	Weissenberg (M)		115.0		
West Coast	Weninger	100	117.75 ± .48	5.19 ± .25	7.77 ± .37
Asia					
Irak Bedawin	Ehrich	33	128.67 ± .89	7.60 ± .63	5.91 ± .49
Europe					
South Italians	Hrdlička	50	115.5		
Norway, Opland	B. and S.	739	119.89 ± .15	6.12	5.10
Eastern Norway	(L and L)		120.2		
Spain	Barras (W)	56	120.27 ± .76	8.41 ± .50	6.99 ± .42
Irish	Hrdlička	35	121.0		
Old Americans	Hrdlička	726	121.5		
English	Hrdlička	20	121.9		
Norway (total)	B. and S.	11,769	122.24 ± .04	6.52	5.33
Germans	Weissenberg (M)		123.0		
Runo Island	Hilden (L & L)		123.1		
English criminals	Goring	2,348	123.73 ± .11		
Trondelagen	(L and L)		124.8		
Norway, Eidfjord	A. Schreiner	35	125.3		
Norway, Hålandsdal	A. Schreiner	67	126.46 ± .62	7.47	5.91
Sweden (total)	L. and L.		126.57 ± .02	6.92 ± .01	5.46
Western Sweden, V.	L. and L.		127.35 ± .05	6.87 ± .04	5.39
Norway, Valle	A. Schreiner	120	128.28 ± .41	6.62	5.17
Iceland	Hannesson (L & L)		128.7		

Differences between Means, in Millimeters

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Spain	Norway	Sweden
Rif	--	..	..	..	..	..	4.79	3.15	4.57	6.35	3.83	1.86	2.47
Senhaja	1.99	--	..	..	..	..	2.80	1.16	6.56	4.36	1.84	.13	4.46
Ghomara	2.76	.77	--	..	..	..	2.03	.39	7.33	3.44	1.07	.90	5.23
Sheshawen	.96	1.03	1.80	--	..	..	3.83	2.19	5.53	5.39	2.87	.90	3.43
Arabs	.73	1.26	2.07	.23	--	..	4.06	2.42	5.30	5.62	3.10	1.13	3.20
Shluh	4.36	2.37	1.60	3.40	3.63	--	.43	1.21	8.93	1.99	.53	2.50	6.83

Difference of Means equals X times P.E.

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Spain	Norway	Sweden
Rif	--	..	..	..	..	..	6.66	5.00	5.02	12.21	4.85	8.46	11.76
Senhaja	5.53	--	..	..	..	..	3.74	1.73	6.98	7.79	2.27	4.48	1.54
Ghomara	5.02	1.97	--	..	..	..	2.36	.49	7.11	4.91	1.18	1.76	10.25
Sheshawen	1.23	1.29	2.12	--	..	..	3.68	2.27	3.77	6.06	2.68	1.20	4.57
Arabs	1.40	2.25	2.96	.26	--	..	4.84	3.14	5.20	8.27	3.44	2.36	6.67
Shluh	16.15	5.93	2.76	4.25	6.60	--	.58	1.83	9.60	3.55	.65	8.62	2.44

hand, have faces bordering in length on the extreme limit of the human range; in fact, longer than any mean given by Martin. The only figures comparable to it in this material are the means of the small Kebdana and Mazuza groups. The variability of this measurement is high in all Moroccan groups, the two Algerian groups for which we have constants, and among the Bedawin; but a high degree of variation in this measurement is a normal condition.

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Among the Europeans presented, Goring's English criminals present the greatest parallel, with a difference of .37 ± .24 mm. and consequent value of 1.54 XP.E. The Scandinavian and German groups rotate about and exceed the Riffian mean, whereas the Mediterranean peoples and some of British descent seem definitely shorter faced. The Central Riffian tribes, however, attain a mean comparable to the Old Americans, English, and Norwegians. The Shluh fall into the Mediterranean range, whereas the Ghomara are comparable to the shortest faced tribe of Central Riffians.

Unfortunately I was unable to obtain any comparative data upon skeletal series for this measurement, due to the general scarcity of lower jaws.

FACIAL INDEX

The Riffians are relatively, as well as absolutely, the longest faced of the six Moroccan groups. The Arabs follow them closely, and the only group greatly different is the Ghomara. The tribal means do not follow the usual pattern wherein the Central Riffians differ mostly from the tribes to the east of them. In this case the Central Riffians, excepting Gzennaya, approximate the Riffian mean; Kebdana and Mazuza show themselves hyperleptoprosopic; and a band of low index means traverses the area from north to south, along Temsaman, Beni Tuzin, Gzennaya, and the Arabophone Senhaja. Except for the latter the Senhaja show a similarity to the generality of Riffians.

TABLE 27. FACIAL INDEX

	No.	M.	σ	V.
Total Rif	529	91.40 ± .16	5.58 ± .12	6.10 ± .13
Total Senhaja	195	90.54 ± .24	4.87 ± .15	5.38 ± .16
Ghomara	73	89.75 ± .37	4.70 ± .28	5.24 ± .31
Sheshawen	28	90.79 ± .47	3.69 ± .33	4.06 ± .37
Arabs	93	91.33 ± .36	5.15 ± .26	5.64 ± .28
Shluh	277	90.94 ± .22	5.47 ± .16	6.01 ± .17
Kebdana		95.93 ± 1.06	5.91 ± .75	6.16 ± .78
Mazuza		94.17 ± .63	5.08 ± .44	5.39 ± .47
Galiya		92.20 ± .46	5.06 ± .33	5.49 ± .35
Nomads		90.52 ± .67	5.36 ± .48	5.92 ± .52
Said		90.17 ± .65	5.19 ± .46	5.76 ± .51
Ulishk		90.87 ± .52	5.57 ± .37	6.13 ± .40
Temsaman		88.58 ± .47	5.48 ± .37	6.02 ± .41
Tuzin		89.45 ± .46	4.22 ± .33	4.72 ± .37
Gzennaya		88.58 ± .47	5.14 ± .33	5.80 ± .37
Urriaghel		91.47 ± .49	5.83 ± .35	6.37 ± .38
Amart		91.91 ± .85	5.88 ± .60	6.40 ± .65
Targuist		90.67 ± 1.04	6.56 ± .74	7.24 ± .81
Bokoya		91.17 ± .54	3.94 ± .38	4.32 ± .42
Maritimes		92.55 ± .95	6.58 ± .67	7.11 ± .72
Zarket		90.96 ± .72	5.31 ± .51	5.84 ± .56
Bu Nsar		91.04 ± .50	3.67 ± .35	4.03 ± .38
Hamid		91.78 ± .50	3.17 ± .36	3.45 ± .39
Taghzuth		90.68 ± .43	4.86 ± .30	5.36 ± .33
Ktama		90.68 ± .33	4.38 ± .44	4.83 ± .49
Ar. Sen.		89.45 ± .54	5.50 ± .38	6.15 ± .43

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Comparative Data

	Authority	No.	M.	σ	V.
North Africa					
Kabyles †	R.-Mac I. and W.	49	86.41 ± .51	5.27 ± .36	6.10 ± .41
Shawia †	R.-Mac I. and W.	57	88.72 ± .52	5.83 ± .37	6.57 ± .41
Africa south of the Sahara					
M'Baka	Poutrin (M)		81.6		
Duala and Batanga	von Luschan (M)		82.3		
Swahili	von Luschan (M)		83.3		
Togo	von Luschan (M)		83.4		
Babinga	Poutrin (M)		85.4		
West Coast	Weninger	100	117.75 ± .48	7.15 ± .34	6.07 ± .29
Asia					
Irak Bedawin †	Ehrich	33	93.36 ± .68	5.85 ± .49	6.27 ± .52
Europe					
South Italians	Hrdlička	50	83.1		
Runo Island *	Hilden (L & L)		85.9		
Old Americans	Hrdlička	726	87.5		
Irish	Hrdlička	35	87.7		
English	Hrdlička	20	88.1		
Norway, Eidfjord	A. Schreiner	37	88.72 ± .47	4.26	4.80
Norway (total)	B. and S.	11,763	89.09 ± .04	5.26	5.88
Spain	Barras (W)	77	89.37 ± .57	7.12 ± .36	7.97 ± .40
Norway, Hålandsdal	A. Schreiner	71	89.42 ± .43	5.36	6.00
Eastern Norway	Bryn (L & L)		89.8		
Norway, Valle	A. Schreiner	96	89.94 ± .33	4.86	5.41
Trondelagen *	(L and L)		90.0		
English convicts *[1]	Goring		90.0		
Norway, Opland	B. and S.	739	90.37 ± .13	5.27	5.83
Sweden, Vastmanlands län	L. and L.		91.84 ± .10	5.16 ± .07	
Iceland *	Hannesson (L & L)		92.1		
Sweden (total)	L. and L.		93.14 ± .02	5.61 ± .01	6.02
Western Sweden, V.	L. and L.		93.77		
Sweden, Sodermanlands län	L. and L.		93.78 ± .09	5.83 ± .07	6.22

[1] Goring calculated his facial indices by dividing the breadth by the length, instead of the opposite, which is usual.

Differences between Means, in Index Points

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Spain	Norway	Sweden
Rif	--	..	..	..	..	..	4.99	2.68	1.96	5.51	2.03	2.31	1.74
Senhaja	.86	--	..	..	..	..	4.13	1.82	2.82	4.65	1.17	1.45	2.60
Ghomara	1.65	.79	--	..	..	..	3.34	1.03	3.61	3.86	.38	.66	3.39
Sheshawen	.61	.25	1.04	--	..	..	4.38	2.07	2.57	4.90	1.42	1.70	2.35
Arabs	.07	.79	.58	.54	--	..	4.92	2.61	2.03	5.44	1.96	2.24	1.81
Shluh	.46	.40	1.19	.15	.39	--	4.53	2.22	2.42	5.05	1.57	1.85	2.20

Difference of Means equals X times P.E.

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Spain	Norway	Sweden
Rif	--	..	..	..	..	..	9.42	4.96	2.80	13.78	3.44	14.44	10.88
Senhaja	2.96	--	..	..	..	..	7.38	3.19	3.92	10.57	1.89	5.80	10.83
Ghomara	4.13	1.80	--	..	..	..	5.30	1.61	4.69	7.42	.56	1.78	9.17
Sheshawen	1.22	.47	1.73	--	..	..	6.35	2.96	3.10	8.17	1.92	3.62	5.00
Arabs	.18	1.84	1.12	.92	--	..	7.94	4.14	2.64	10.46	2.93	6.22	5.03
Shluh	1.70	1.21	2.77	.29	.93	--	8.09	3.97	3.41	11.75	2.57	8.04	10.00

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The only two North African groups for which we have this index, the Kabyles and Shawia of Randall-Mac Iver and Wilkin, appear to be significantly below the Riffians, although the latter of the two groups are comparable to the Senhaja and Ghomara. The difference in this index between the Algerian Berbers and the Riffians is due to both an absolutely shorter and absolutely broader face in the case of the former. The Algerians just surmount the negroid range in this index, which the Riffians exceed beyond all semblance of similarity, due to their greatly longer and slightly narrower absolute dimensions. The Irak Bedawin, with their very long faces, fall into the hyperleptoprosopic class, exceeding the Riffians by almost two index points, as well as the Arabs, with whom they are traditionally related.

The roster of European groups shows the Scandinavians occupying a great range, with the Icelanders closest to the Riffians, and the Swedes exceeding them, whereas the Norwegian national figure falls below that of any Moroccan group. The closest to the Riffians is one of Sweden's "Kernel area" provinces. The Spaniards of Barras fall close to the Norwegian total, and Hrdlička's small series of South Italian immigrants is very low indeed. The latter author's British and American indices indicate a low position for these groups, at variance from Goring's. In general, the two Mediterranean groups occupy a lower place than do most of the Scandinavians, although both vary greatly and the ranges slightly overlap. The Riffians show themselves more similar to the Nordic than to the Mediterranean peoples in this index, although the distinction is far from conclusive.

UPPER FACE HEIGHT

This dimension was found to require the same correction as the total face height. As in the former case, the only perceptible effect is in slightly lowering the constants of variation.

Unfortunately, this is a measurement which, although taken commonly on the skull, is almost never taken on the living. Martin lists but eleven groups, none of which are of use to us here. Of the five groups obtained for comparison, only one did not require seriation before use.

The Riffians have the longest upper, as well as total, face height, of the six Moroccan groups. The Arabs again show a similarity to them, with all other groups differing by a margin of over 3 XP.E. The Senhaja are intermediate, and Ghomara, Sheshawen, and Shluh almost identical, and low compared to the other three.

The Kabyles fall below the Moroccan range, while the Shawia exceed the three low Moroccan groups, still remaining lower than the Senhaja, Arabs, and Riffians. The Negroes fall definitely below the Moroccan range, with a high significant difference from all groups. This is one of their marked metrical differences. The Bedawin, on the other hand, have much longer upper, as well as total, face dimensions, than any Moroccan or either of the two Algerian groups, and are as different in their direction from the Riffians as the Negroes are in theirs. The Spanish series falls close to the Riffian mean, oddly exceeding it in this dimension while it falls short of it in the total dimension.

The skeletal series should not present means greatly shorter than those of the living. Nasion occupies the same point in both cases, and the thickness of the gums at prosthion probably does not exceed two millimeters. The comparative data, consisting of ancient and modern Nordic, British, Spanish, and Canarian series, lie close to the Riffian mean. The

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most comparable are the Anglo-Saxon, Scotch, Spanish, and Teneriffe "Nordic" means. The Franks of Hainaut with their excessive dimension exceed the Riffians no more than they do all other peoples. They seem to have been a specialized group of their own; if they were ultra-Nordic, as Hooton facetiously suggests, they were alone in this respect. Being but twenty in number they may well have formed a single family group.

TABLE 28. UPPER FACE HEIGHT

	No.	M.	σ	V.
Total Rif	529	72.45 ± .14	4.96 ± .10	6.85 ± .14
Total Senhaja	197	71.61 ± .23	4.60 ± .14	6.42 ± .19
Ghomara	73	70.47 ± .38	4.86 ± .29	6.90 ± .41
Sheshawen	28	70.50 ± .51	3.99 ± .36	5.66 ± .51
Arabs	93	72.12 ± .38	5.41 ± .27	7.50 ± .37
Shluh	277	70.37 ± .21	5.07 ± .15	7.20 ± .21

COMPARATIVE DATA

North Africa	Authority	No.	M.	σ	V.
Kabyles †	R.-Mac I. and W.	50	69.34 ± .49	5.12 ± .35	7.38 ± .50
Shawia †	R.-Mac I. and W.	57	71.02 ± .41	4.58 ± .29	6.45 ± .41
Africa south of the Sahara					
West Coast	Weninger	100	66.78 ± .35	5.19 ± .25	7.77 ± .37
Asia					
Irak Bedawin †	Ehrich	33	79.09 ± .46	3.93 ± .33	4.97 ± .41
Europe					
Spain	Barras (W)	79	72.92 ± .50	6.24 ± .31	8.56 ± .43
Skeletal Material					
Long Barrow	Parsons		67.0		
Orotava modern	(H)		67.8		
Moorfields	Parsons		68.1		
English and Scotch Iron Age	Morant	30	69.1		
Teneriffe	Hooton		69.7		
Long Barrow	(H)		69.9		
Whitechapel	Morant	75	70.2		
English and Scotch Neolithic	Morant	32	70.8		
Teneriffe "Nordics"	Hooton		71.4		
Spanish	Hoyos Sainz (H) (M)		71.5		
Scotch	Turner (H) (M)		71.6		
Anglo-Saxon	Morant	22	71.7		
Franks of Hainaut	Housé (H)		86.2		
Males and Females					
Burgundians	(H)		66.7		
Alamanni of Augst	(H)		69.1		
Burgundians	(H)		69.1		

DIFFERENCES BETWEEN MEANS, IN MILLIMETERS

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Spain	Norway	Sweden
Rif	--	..	..	..	..	..	3.11	1.43	6.64	5.67	.47	..	..
Senhaja	.84	--	..	..	..	..	2.27	.59	7.48	4.83	1.31	..	..
Ghomara	1.98	1.14	--	..	..	..	1.13	.55	8.62	3.69	2.45	..	..
Sheshawen	1.95	1.11	.03	--	..	..	1.16	.52	8.59	3.72	2.42	..	..
Arabs	.33	.51	1.65	1.62	--	..	2.78	1.10	6.97	5.34	.80	..	..
Shluh	2.08	1.24	.10	.13	1.75	--	1.03	.65	8.72	3.49	2.55	..	..

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DIFFERENCE OF MEANS EQUALS X TIMES P.E.

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Spain	Norway	Sweden
Rif	--	..	..	..	..	..	6.10	3.33	13.83	14.92	.90	..	..
Senhaja	3.11	--	..	..	..	..	4.20	1.26	14.66	11.50	2.38	..	..
Ghomara	5.08	2.36	--	..	..	..	1.82	.98	14.37	7.10	4.09	..	..
Sheshawen	3.68	1.98	.05	--	..	..	1.63	.80	12.45	6.00	3.36	..	..
Arabs	.85	1.16	3.06	2.53	--	..	4.48	1.96	11.62	13.03	1.27	..	..
Shluh	8.32	4.00	2.33	.24	4.07	--	1.94	1.41	17.10	8.51	4.72	..	..

The disharmonic comparative quality of the Spanish series suggests a difference in the relation between the two face lengths which may be of racial significance. Dividing the upper face height by the total face height, we obtain the following index values:

Group	Authority	Index
West Coast	Weninger	56.7
Sheshawen		57.7
Ghomara		58.1
Kabyles	R.-Mac I and W.	58.1
Rif		58.4
Senhaja		58.6
Arabs		58.6
Shawia	R.-Mac I and W.	58.7
Shluh		58.8
Spain	Barras (W)	60.6
Irak Bedawin	Ehrich	61.5
Skeletal Material		
Guanches	von Behr (M)	58.0
Scotch	Turner (M)	59.4
Spanish	Hoyos Sainz (M)	60.3

This array, tentative as it is, suggests a relatively heavy lower jaw for Negroes, with Berbers and Guanches intermediate between them and the Spanish and Irak Bedawin, whereas the Scotch fall between the Berbers and Spaniards. One of the notable observational features of the Nordic type is the length of the lower jaw and strong chin development. In their differentiation from the Spaniards in this respect, the Riffians would seem to show a Nordic tendency. A negroid tendency is precluded by the fact that they differ from the Negroes to such a marked degree in actual measurements, as well as by the fact that the Shluh, our most negroid group, are closest to the Spaniards. These suggestions are of course not seriously advanced since with present data they cannot be proved.

UPPER FACIAL INDEX

Being dependent upon the preceding measurement, this index is equally rare in anthropometric literature, except for skeletal material. All of the Moroccan groups excepting Ghomara and Sheshawen are closely similar. These latter two are significantly different from all other groups except each other. Among human groups, the Riffians run high in this index, indicating a long narrow facial type. The Kabyles fall significantly below all of the Moroccans, whereas the Shawia are in the same category as Ghomara and Sheshawen. The Negroes are greatly below all, and the Irak Bedawin equally distant in the opposite direction. The Spaniards, running but one index point higher than the Riffians, are not far distant.

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In using the skeletal material comparatively we must remember that the soft parts over the zygomatic arches are probably thicker than the compensatory skin at nasion and gum over prosthion. Hence the index runs probably one or two points higher in the skeleton than on the living.

TABLE 29. UPPER FACIAL INDEX

	No.	M.	σ	V.
Total Rif	529	53.42 ± .12	3.96 ± .08	7.41 ± .15
Total Senhaja	197	53.10 ± .19	3.87 ± .12	7.30 ± .22
Ghomara	73	52.11 ± .27	3.37 ± .20	6.47 ± .38
Sheshawen	28	51.93 ± .43	3.34 ± .30	6.43 ± .58
Arabs	93	53.36 ± .29	4.10 ± .20	7.68 ± .38
Shluh	277	53.23 ± .16	4.02 ± .16	7.55 ± .22

COMPARATIVE DATA

	Authority	No.	M.	σ	V.
North Africa					
Kabyles †	R.-Mac I. and W.	50	50.22 ± .35	3.70 ± .25	7.36 ± .50
Shawia †	R.-Mac I. and W.	57	52.11 ± .32	3.56 ± .22	6.83 ± .43
Africa south of the Sahara					
West Coast	Weninger	100	48.70 ± .27	3.96 ± .19	8.13 ± .39
Asia					
Irak Bedawin †	Ehrich	33	57.42 ± .40	3.43 ± .28	5.97 ± .50
Europe					
Spain	Barras (W)	78	54.65 ± .43	5.36 ± .27	9.81 ± .49
Skeletal Material					
Long Barrow *	Parsons		49.6		
Orotava modern *	(H)		51.1		
Teneriffe	Hooton		52.1		
Long Barrow *	(H)		52.2		
Moorfields *	Parsons		52.8		
English and Scotch Iron Age *	Morant	55–30	52.9		
Whitechapel *	Morant	43–75	53.6		
Anglo-Saxon *	Morant	34–22	53.8		
English and Scotch Neolithic *	Morant	41–32	54.3		
Teneriffe "Nordics"	Hooton		54.5		
Scotch *	Turner (H) (M)		54.9		
Spanish	Hoyos Sainz (M) (H)		55.5		
Franks of Hainaut	Houzé (H)		65.0		
Males and Females					
Alamanni of Switzerland	Schwerz (H)		53.4		
Alamanni of Augst	Schwerz (H)		54.0		
Burgundians	Schwerz (H)		54.1		

DIFFERENCES BETWEEN MEANS, IN INDEX POINTS

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Spain	Norway	Sweden
Rif	--	..	..	..	..	..	3.20	1.31	4.00	5.72	1.23	..	..
Senhaja	.32	--	..	..	..	..	2.88	.99	4.32	3.40	1.55	..	..
Ghomara	1.31	.99	--	..	..	..	1.89	..	5.31	3.41	2.54	..	..
Sheshawen	1.49	1.17	.18	--	..	..	1.71	.18	5.49	3.23	2.72	..	..
Arabs	.06	.26	1.25	1.43	--	..	3.14	1.25	4.06	5.66	1.29	..	..
Shluh	.19	.13	1.12	1.30	.13	--	3.01	1.12	4.19	5.53	1.42	..	..

This would throw Hooton's normal Teneriffe series into the class of the Ghomara, and the Teneriffe "Nordics" into that of the Riffians. Both the modern Spanish crania and those of most of the Nordic groups resemble the Riffians in this index.

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DIFFERENCE OF MEANS EQUALS X TIMES P.E.

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Spain	Norway	Sweden
Rif.....	--	..	..	..	..	..	8.65	3.85	9.52	19.07	2.73	..	..
Senhaja ...	1.45	--	..	..	..	..	7.20	2.68	9.82	10.30	3.30	..	..
Ghomara ..	4.37	3.00	--	..	..	..	4.30	..	11.05	8.97	4.98	..	..
Sheshawen .	3.24	2.49	.35	--	..	..	3.11	.33	9.31	6.21	4.46	..	..
Arabs	.19	.74	3.05	2.75	--	..	6.98	2.91	8.29	14.15	2.48	..	..
Shluh	.95	.52	3.61	2.83	.39	--	7.72	3.11	9.74	17.93	3.09	..	..

One of the most significant differences so far encountered between the Riffians and Spaniards, aside from stature and its component elements, is the relative disharmony between the two indices of the face. The Riffians exceed the Spanish in the total facial index and the Spaniards exceed them in the upper facial index; plainly indicating the greater development of the mandible in the Riffians, a point which is further brought out by the difference in bigonial diameter. In the latter dimension the Riffians clearly find their closest parallels among the Nordic groups.

NOSE HEIGHT

In this measurement the Riffians compare favorably with the long nosed groups of the world. Ehrich's Bedawin attain an exceptionally high figure, as do some of Mme. Schreiner's Norwegians.

Of Moroccan groups, the Riffians have the longest noses, being closely followed by the Sheshawen series. All others show significant differences from the Riffians. The Senhaja and Shluh, whose means are practically identical, fall into lowest place. The Riffian tribal means show, as might be expected, the greatest values in Mazuza and Kebdana; the Central Riffian tribes do not, however, fall greatly below them. The shortest nosed groups are Beni Tuzin, Targuist, and Bokoya. Among the Senhaja, Beni Bu Nsar and Beni Hamid have noses of normal Riffian length, while Taghzuth and the Arabophone Senhaja fall to the mean of 53 mm. Ktama and Zarket agree with the Central Riffian tribes.

The Algerians differ more by authors than they do by groups. Amat, writing in the early days of anthropometry, may have used some point other than nasion. As for the others, the chief conflict is between Randall-Mac Iver and Wilkin and Viré. The former measured more recently. If we follow them, as we have throughout, we find the Algerian Berbers with considerably shorter noses than the Riffians. If we follow Viré there is little difference.

The two Negro groups available agree in revealing the Negro nose as much shorter than that of the Moroccans; its chief difference, however, lies not in this dimension but in the breadth. The Mesopotamian Arabs of Ehrich, with their extreme nose length, may have been influenced by the contiguity of Kurds and Turcomans. If their condition is typical of the pure Bedawin, their descendants in North Africa have then been completely modified to a Berber nasal condition.

Few European groups are available for comparison. In this dimension, as in others, there appears a great difference between the South Italians and the Spaniards, both theoretically members of the Mediterranean race. The closest of the six European groups given to the Riffians is Aranzadi's small provincial series. It is notable that the three British

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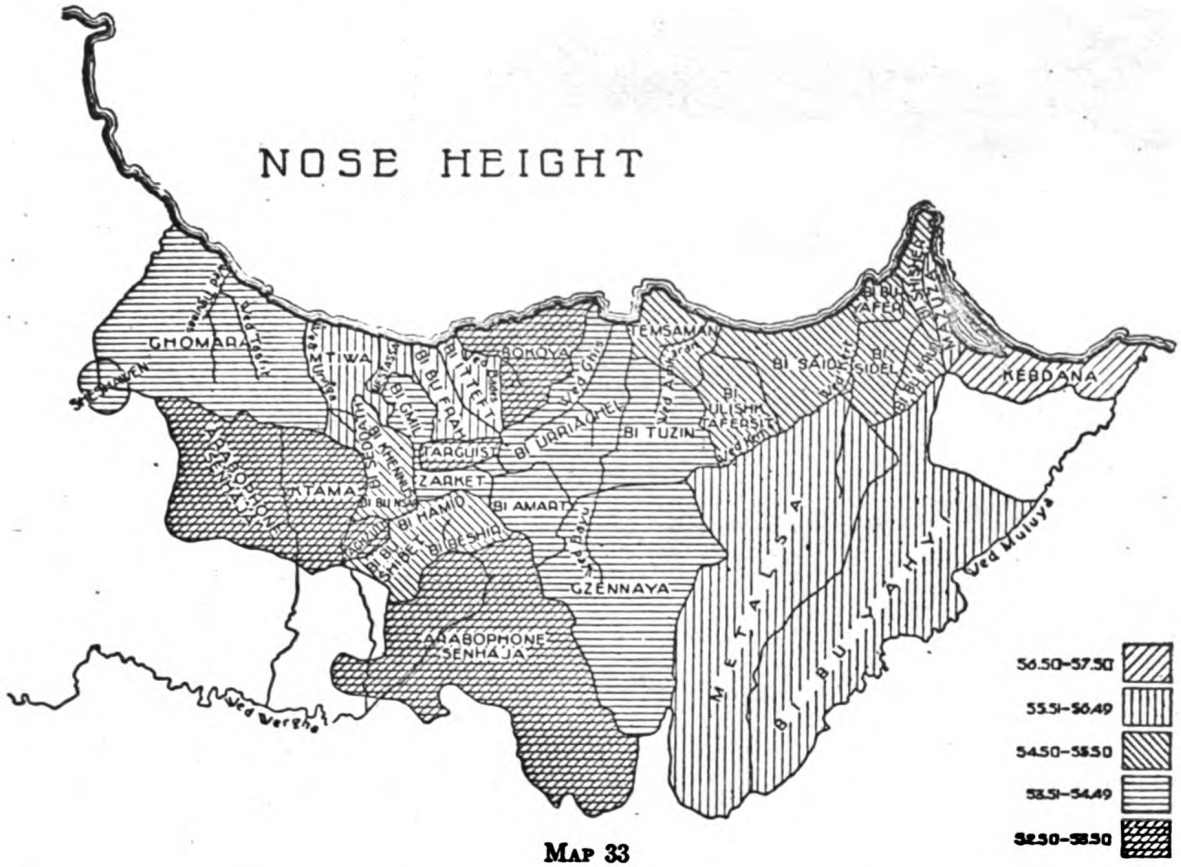
stocks measured by Hrdlička, of which unfortunately the English and Irish samples are very small, the nose length is lower than either the Spaniards or the Riffians. Mme. Schreiner's means for three Norwegian groups suggest, as do her portraits, a Dinaric influence in nasal dimensions.



MAP 33

The nose length of the skull, taken from nasion to the lower sill on either nasal aperture, and averaged, should not differ much from that taken on the living, among races with relatively straight and horizontal nasal septa. Due to variations of the nasal tip, however, it is impossible to relate the two measurements exactly. The Nordic groups appear slightly longer nosed than those of Mediterranean origin, although as usual the Spanish (and in this case the Portuguese) approach the North Europeans. At any rate the Riffians would appear well in the fore, comparable to the longest nosed groups, with any reasonable correction.

TABLE 30. NOSE HEIGHT

	No.	M.	σ	V.
Total Rif	529	54.74 ± .12	4.09 ± .08	7.47 ± .16
Total Senhaja	196	53.15 ± .20	3.92 ± .12	7.38 ± .22
Ghomara	73	53.58 ± .33	4.16 ± .24	7.76 ± .46
Sheshawen	28	54.29 ± .47	3.66 ± .33	6.74 ± .61
Arabs	93	53.86 ± .33	4.78 ± .24	8.88 ± .44
Shluh	277	53.16 ± .17	4.17 ± .12	7.84 ± .23

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	M.	σ	M.
Kebdana	56.93 ± .85	4.73 ± .60	8.31 ± 1.06
Mzuza	56.41 ± .46	3.67 ± .32	6.51 ± .58
Galiya	54.69 ± .35	3.86 ± .25	7.06 ± .45
Nomads	55.69 ± .52	4.19 ± .37	7.52 ± .67
Said	55.40 ± .46	3.70 ± .32	6.68 ± .58
Ulishk	55.00 ± .30	3.29 ± .22	5.98 ± .39
Temsaman	55.49 ± .44	4.57 ± .31	8.24 ± .56
Tusin	53.87 ± .43	3.94 ± .32	7.31 ± .58
Gzennaya	54.09 ± .32	3.55 ± .23	6.56 ± .42
Urriaghel	54.03 ± .28	3.28 ± .20	6.07 ± .36
Amart	54.04 ± .48	3.35 ± .34	6.20 ± .63
Targuist	52.72 ± .71	4.48 ± .50	8.50 ± .96
Bokoya	53.44 ± .49	3.49 ± .35	6.53 ± .65
Maritimes	55.68 ± .73	5.08 ± .52	9.12 ± .93
Zarket	54.00 ± .54	4.00 ± .38	7.41 ± .71
Bu Nsar	55.12 ± .57	4.23 ± .40	7.67 ± .73
Hamid	54.94 ± .67	4.09 ± .47	7.44 ± .86
Taghzuth	52.68 ± .36	4.09 ± .25	7.76 ± .48
Ktama	53.45 ± .56	3.90 ± .40	7.23 ± .74
Ar. Sen	53.04 ± .31	3.15 ± .22	5.94 ± .41

Comparative Data

North Africa	Authority	No.	M.	σ	V.
Kabyles	d'Hercourt	13	48.0		
Algerian Arabs	d'Hercourt	18	49.0		
Shawia	Papillault	15	49.9		
Kabyles	R.-Mac I. and W.	50	50.30 ± .41	4.25 ± .29	8.95 ± .60
Shawia	R.-Mac I. and W.	57	51.35 ± .39	4.36 ± .27	8.49 ± .53
Blond Kabyles	Viré	22	53.75		
Brunet Kabyles	Viré	43	55.01		
Mzabites	Amat	50	56.0		
Africa south of the Sahara					
West Coast	Weninger	100	48.00 ± .26	3.92 ± .19	8.17 ± .39
Fan	Poutrin (M)		48.0		
Asia					
Irak Bedawin	Ehrich	33	58.52 ± .53	4.50 ± .37	7.69 ± .66
Europe					
South Italians	Hrdlička	50	50.2		
Irish	Hrdlička	35	51.9		
Old Americans	Hrdlička	726	53.8		
English	Hrdlička	20	54.0		
Spain, Carcereños	Aranzadi	23	54.6		
Spain	Barras (W)	79	55.73 ± .40	5.06 ± .25	9.08 ± .45
Runo Island	Hilden (A.S.)	79	56.10 ± .42		
Norway, Valle	A. Schreiner	131	57.33 ± .22	3.77	6.57
Norway, Eidfjord	A. Schreiner	36	59.03		
Norway, Hålandsdal	A. Schreiner	68	59.57 ± .29	3.58	6.01

Skeletal Material	Authority	No.	M.
Azores	(H)		49.6
Orotava	(H)		49.8
Moorfields	Macdonnell (H)		50.4
English and Scotch Neolithic	Morant	15	50.6
Teneriffe	Hooton		50.8
Spanish	Hoyos Sainz (M) (H)		51.0

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	Authority	No.	M.	
Whitechapel	Morant	79	51.2	
Portuguese	(H)		52.2	
Anglo-Saxon	Morant	22	52.25	(52.3 left, 52.2 right)
Scotch	Turner (H) (M)		53.5	
Franks of Hainaut	Houzé (H)		55.1	

DIFFERENCES BETWEEN MEANS, IN MILLIMETERS

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Spain	Norway	Sweden
Rif	--	..	..	..	..	..	4.44	3.39	3.78	6.74	.99	..	..
Senhaja	1.59	--	..	..	..	..	2.85	1.81	5.37	5.15	2.58	..	..
Ghomara	1.16	.43	--	..	..	..	3.28	2.23	4.94	5.58	2.15	..	..
Sheshawen	.45	1.14	.71	--	..	..	3.99	2.86	4.23	6.29	1.44	..	..
Arabs	.88	.71	.28	.43	--	..	3.56	2.51	4.66	5.86	1.87	..	..
Shluh	1.58	.01	.42	1.13	.70	--	2.86	1.81	5.36	5.16	2.57	..	..

DIFFERENCE OF MEANS EQUALS X TIMES P.E.

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Spain	Norway	Sweden
Rif	--	..	..	..	..	..	10.32	8.27	7.00	23.24	2.36	..	..
Senhaja	6.91	--	..	..	..	..	6.19	4.11	9.42	15.60	5.74	..	..
Ghomara	3.31	1.10	--	..	..	..	6.19	4.37	7.97	13.28	4.14	..	..
Sheshawen	.94	2.24	1.25	--	..	..	6.43	4.69	5.96	11.64	2.32	..	..
Arabs	2.51	1.82	.60	.76	--	..	6.72	4.92	7.52	13.96	3.59	..	..
Shluh	7.51	.04	1.14	2.26	1.89	--	6.50	4.21	9.57	16.64	5.98	..	..

NOSE BREADTH

In this dimension, taken without pressure across the alae, the six Moroccan groups divide into two portions, the Ghomara, Senhaja, and Rif; and the Shluh, Arabs, and Sheshawen. Of the narrower three the Riffians are the broadest, being significantly broader

TABLE 31. NOSE BREADTH

	No.	M.	σ	V.
Total Rif	529	34.60 ± .10	2.65 ± .06	7.66 ± .16
Total Senhaja	196	34.58 ± .14	2.90 ± .09	8.39 ± .10
Ghomara	73	33.97 ± .21	2.62 ± .15	7.71 ± .45
Sheshawen	28	35.64 ± .33	2.59 ± .22	7.27 ± .66
Arabs	93	35.47 ± .20	2.91 ± .14	8.20 ± .41
Shluh	277	35.28 ± .13	3.20 ± .09	9.07 ± .26
Kebdana		34.64 ± .44	2.44 ± .31	7.04 ± .90
Mazuza		35.10 ± .36	2.88 ± .26	8.20 ± .73
Galiya		34.51 ± .22	2.45 ± .16	7.10 ± .46
Nomads		34.90 ± .29	2.30 ± .20	6.59 ± .58
Said		35.37 ± .40	3.21 ± .28	9.08 ± .79
Ulishk		35.57 ± .26	2.78 ± .18	7.82 ± .51
Temsaman		35.22 ± .26	2.75 ± .19	7.81 ± .53
Tuzin		34.16 ± .25	2.30 ± .18	6.73 ± .54
Gzennaya		34.11 ± .19	2.06 ± .13	6.04 ± .39
Urriaghel		33.91 ± .19	2.31 ± .14	6.81 ± .41
Amart		34.41 ± .41	2.84 ± .29	8.25 ± .84
Targuist		34.00 ± .33	2.08 ± .23	6.12 ± .69
Bokoya		34.17 ± .34	2.39 ± .24	6.99 ± .70
Maritimes		34.50 ± .35	2.46 ± .25	7.13 ± .72

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	M.	σ	V.
Zarket	34.12 ± .39	2.89 ± .28	8.47 ± .81
Bu Nsar	35.20 ± .43	3.16 ± .30	8.98 ± .86
Hamid	34.47 ± .58	3.53 ± .41	10.24 ± 1.18
Taghsuth	34.68 ± .25	2.80 ± .17	8.07 ± .50
Ktama	34.50 ± .35	2.46 ± .25	7.13 ± .72
Ar. Sen	34.32 ± .26	2.62 ± .18	7.63 ± .53

COMPARATIVE DATA

North Africa	Authority	No.	M.	σ	V.
Shawia	Papillault	13	33.0		
Mzabites	Amat	50	34.0		
Shawia	R.-Mac I. and W.	57	34.72 ± .23	2.57 ± .16	7.40 ± .47
Blond Kabyles	Viré	22	35.08		
Kabyles	R.-Mac I. and W.	50	36.00 ± .24	2.48 ± .17	6.89 ± .46
Africa south of the Sahara					
Fan	Poutrin (M)		44.0		
West Coast	Weninger	100	44.17 ± .22	3.29 ± .16	7.45 ± .35
Asia					
Irak Bedawin	Ehrich	33	35.39 ± .28	2.39 ± .20	6.56 ± .54
Europe					
Spain	Barras (W)	79	32.99 ± .25	3.08 ± .15	9.33 ± .47
Spain, Carcereños	Aranzadi (W)	23	34.0		
English	Hrdlička	20	34.8		
Irish	Hrdlička	35	34.8		
Norway, Eidfjord	A. Schreiner	36	35.11		
Old Americans	Hrdlička	726	35.3		
South Italians	Hrdlička	50	35.7		
Norway, Hålandsdal	A. Schreiner	68	35.57 ± .23	2.78	7.81
Norway, Valle	A. Schreiner	127	36.14 ± .15	2.55	7.09
Runo Island	Hilden (A. S.)	79	36.96 ± .27		

Skeletal Material	Authority	No.	M.
Azores	(H)		23.0
Scotch	Turner (H) (M)		23.1
Portuguese	(H)		23.2
English and Scotch Neolithic	Morant	34	23.6
English and Scotch Iron Age	Morant	67	23.7
Spanish	Hoyos Sainz (H) (M)		24.0
Moorfields	Macdonnell (H)		24.0
Teneriffe	Hooton		24.1
Franks of Hainaut	Houzé (H)		24.2
Whitechapel	Morant	70	24.3
Anglo-Saxon	Morant	28	24.5
Orotava modern	(H)		24.8
Males and Females			
Alamanni of Augst	Schwerz (H)		24.0
Alamanni of Switzerland	Schwerz (H)		24.0
Burgundians	Schwerz (H)		24.0

DIFFERENCES BETWEEN MEANS, IN MILLIMETERS

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Spain	Norway	Sweden
Rif	--	..	..	..	..	..	1.40	.12	.79	9.57	1.61	..	..
Senhaja	.02	--	..	..	..	..	1.42	.14	.81	9.59	1.59	..	..
Ghomara	.63	.61	--	..	..	..	2.03	.75	1.42	10.20	.98	..	..
Sheshawen	1.04	1.06	1.67	--	..	..	.36	.92	.25	8.53	2.65	..	..
Arabs	.87	.89	1.50	.17	--	..	.53	.75	.08	8.70	2.48	..	..
Shluh	.68	.70	1.31	.36	.19	--	.72	.56	.11	8.89	2.29	..	..

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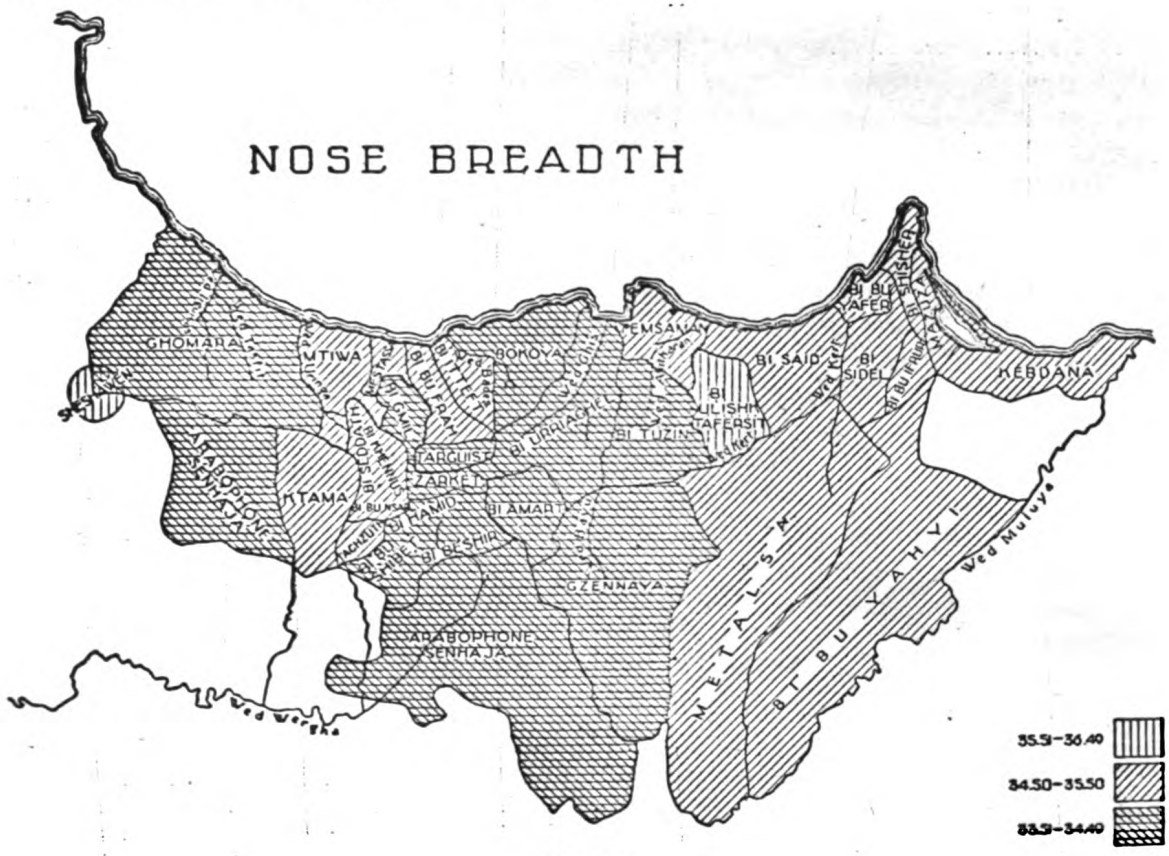
DIFFERENCE OF MEANS EQUALS X TIMES P.E.

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Spain	Norway	Sweden
Rif	--	..	..	..	..	..	5.38	.48	2.63	39.88	5.97	..	..
Senhaja ...	.12	--	..	..	..	..	5.07	.52	2.61	36.88	5.48	..	..
Ghomara ..	2.74	2.44	--	..	..	..	6.34	2.42	4.06	34.00	2.97	..	..
Sheshawen .	3.06	2.94	4.28	--	..	..	.88	2.30	.58	21.08	6.46	..	..
Arabs	3.96	3.71	5.17	.44	--	..	1.71	2.50	.24	29.00	7.75	..	..
Shluh	4.25	3.68	5.24	1.03	.79	--	2.67	2.15	.36	34.20	8.18	..	..

than the Ghomara. Of the other three, and in consequence of all six, the Sheshawen group is the broadest. In general, the Central Riffian tribes are the narrowest, and Mazuza, Beni Said, Beni Ulishk, and Temsaman the broadest, of Riffian tribes. These latter are parallel to the Beni Bu Nsar, the only aberrant Senhajan group.



MAP 34

The Algerian groups seem, according to the various authors, to coincide in general with the Moroccans. The only considerable difference is that of the Kabyles measured by Randall-Mac Iver and Wilkin, significantly broader than all but Sheshawen and the Arabs.

The Negroes, with an excess of approximately 10 mm. over the Moroccan groups, are of course far out of the range of comparability. The Irak Bedawin fall in with the three broader nosed Moroccan groups, and show slight significant differences from the other three. The Spanish series of Barras is significantly narrower than all Moroccans, and this series is

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lower, in the nasal index, than any published in Martin. Other Spanish series show a higher index and perhaps imply, as in the case of the Carcereños, a broader wing diameter. The English, Irish, and Old Americans, all slightly broader than the Riffians, fall well within the Moroccan range, whereas the Norwegians exceed all Moroccan groups. The south Italians are broader even than the Sheshawen group, and again differ markedly from the Spaniards.

The skeletal material, although of course not comparable to the data on the living, serves to show the relationship between the North European and Mediterranean groups. With the exception of the Scotch, the former center about 24 mm., and the latter, with the exception of the probably mixed modern Canarians, about 23 mm. These differences are far from marked.

NASAL INDEX

This index, generally considered one of the most important in physical anthropology, definitely places the Riffians among the more leptorrhine stocks. Despite their greater breadth than the Ghomara and Senhaja, the Riffians, due to their superior nasal length, possess the lowest nasal index of the six Moroccan groups. Except for the low mean reached by Kebdana, our smallest tribal sample, the Riffians keep fairly close to the total mean. The eastern tribes, especially the Nomads, and the Central Riffians are on the whole most leptorrhine. An east-central nucleus of higher indices is found in Beni Ulishk and Beni Said, and a westerly one on Targuist and Bokoya, which carries over to Beni Bu Nsar, Ktama, the Arabophone Senhaja, and culminates in Taghzuth, with an index in excess of 66, comparable to the Arabs. Zarket and Beni Hamid run closer to the Riffian type in this respect, or to the Ghomaran. Differences in this index among Moroccan groups are due more to differences in length than in breadth. The Ghomara, who follow the Riffians closely, are absolutely both shorter and narrower nosed; the Senhaja, with practically the same breadth, have a significantly higher index. The Sheshawen people and the Arabs and Shluh are all mutually comparable, with the Shluh exhibiting the highest index. This is to be expected since of all the groups the Shluh appear the most negroid and the Arabs next. Among the Sheshawen group it would be difficult to find traces of recent negroid blood. There has probably been little or none added to their original mixture since their departure from Spain.

In comparing the Moroccans with the Algerian groups, it would be better not to accept Amat's Mzabites without reservation. The excessive length, without data concerning technique of measuring, yields an index suspiciously below all others from North Africa, especially when gathered from a Saharan oasis. Aside from them, the Shawia and Kabyles, supposedly the blondest and most marginal Algerian Berbers, appear, despite factual discrepancies, definitely broader nosed than the Riffians; perhaps more so than any Moroccan group. This may indicate more Negro blood among the Algerian Berbers or it may follow the higher cephalic index among them.

The Negroes, including no pygmy groups, range from 91 to 108. It can be seen that the Negroes owe their extreme index to the excessive breadth of the nose in greater degree than to its length. Oddly enough the difference among Moroccans was due to variations in length rather than in breadth, indicating variations in two European types rather than being entirely due to negroid accretion. The leptorrhine condition of the Riffians, aside from other characters, is enough to brand them as a definitely European, or (to use a word which I dislike intensely) Caucasoid, as opposed to negroid, people.

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TABLE 32. NASAL INDEX

	No.	M.	σ	V.
Total Rif	529	63.56 ± .19	6.45 ± .13	10.15 ± .21
Total Senhaja	196	64.91 ± .38	7.64 ± .23	11.77 ± .35
Ghomara	73	63.84 ± .53	6.74 ± .40	10.56 ± .62
Sheshawen	28	66.04 ± .87	6.82 ± .62	10.33 ± .93
Arabs	93	66.29 ± .56	8.02 ± .40	12.10 ± .60
Shluh	277	67.11 ± .33	8.18 ± .23	12.19 ± .35
Kebdana		61.21 ± .94	5.20 ± .66	8.50 ± 1.08
Masuza		62.45 ± .76	6.11 ± .54	9.78 ± .87
Galiya		63.38 ± .56	6.13 ± .39	9.67 ± .62
Nomads		62.31 ± .81	6.45 ± .57	10.35 ± .92
Said		64.13 ± .88	7.18 ± .62	11.20 ± .98
Ulishk		64.91 ± .60	6.45 ± .42	9.94 ± .65
Temsaman		62.94 ± .58	6.06 ± .41	9.63 ± .66
Tusin		63.66 ± .67	6.12 ± .47	9.61 ± .74
Gzennaya		63.29 ± .52	5.69 ± .37	8.99 ± .58
Urriaghel		62.97 ± .53	6.33 ± .38	10.05 ± .60
Amart		63.69 ± 1.08	7.52 ± .76	11.76 ± 1.20
Targuist		64.89 ± .97	6.56 ± .74	9.35 ± 1.05
Bokoya		64.30 ± .78	5.54 ± .55	8.62 ± .86
Maritimes		62.45 ± 1.06	7.35 ± .75	11.77 ± 1.20
Zarket		63.48 ± .92	6.85 ± .65	10.79 ± 1.03
Bu Nsar		64.20 ± .95	7.05 ± .67	10.98 ± 1.05
Hamid		63.71 ± 1.46	8.92 ± 1.03	14.00 ± 1.62
Taghsuth		66.37 ± .79	9.00 ± .56	13.56 ± .84
Ktama		64.23 ± .88	6.15 ± .62	9.58 ± .97
Ar. Sen		64.66 ± .67	6.84 ± .48	10.58 ± .74

Comparative Data

North Africa	Authority	No.	M.	σ	V.
Mzabites	Amat	50	60.4		
Blond Kabyles	Viré	22	65.4		
Shawia	Papillault	15	66.13		
Brunet Kabyles	Viré	43	66.21		
Shawia	B. and C.	110	66.82		
Shawia	R.-Mac I. and W.	57	68.37 ± .60	6.76 ± .43	9.89 ± .62
Kabyles	B. and C.	365	69.58		
Western Plateaux	B. and C.	105	71.77		
Kabyles	R.-Mac I. and W.	50	72.08 ± .84	8.78 ± .59	12.18 ± .82
Africa south of the Sahara					
Fan	Poutrin (M)		91.1		
Swahili	von Luschan (M)		92.1		
Kagoro	Tremearne (M)		92.9		
West Coast	Weninger	100	92.94 ± .75	11.18 ± .54	12.03 ± .58
Shilluk	Tucker and Myers (M)		93.3		
Togo	von Luschan (M)		93.8		
Cross River	Mansfeld M)		94.0		
Fiot	Poutrin (M)		94.1		
Duala	von Luschan (M)		95.4		
Dinka	Tucker and Myers (M)		98.9		
Zambesi River	Collignon (M)		101.5		
Sudanese	B. and C.	192	101.68		
Mbaka	Poutrin (M)		103.0		
Babinga	Poutrin (M)		105.0		
Ashanti	Deniker (M)		107.5		

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Asia	Authority	No.	M.	σ	V.
Irak Bedawin	Ehrich	33	60.73 ± .71	6.07 ± .50	10.00 ± .83
Europe					
Spain	Barras (W)	79	59.85 ± .61	7.68 ± .38	12.83 ± .64
Norway, Eidfjord	A. Schreiner	40	60.12 ± .53	5.01	8.33
Norway, Hålandsdal	A. Schreiner	77	60.98 ± .48	6.27	10.28
Spain, 1923	Barras (W)	206	61.62 ± .36		
Spain, Carcereños	Aranzadi (W)	22	62.30 ± .62		
Sweden, Skaraborgs län	L. and L.	260	62.70 ± .24	5.56 ± .17	8.80 ± .26
Norway, Valle	A. Schreiner	143	62.98 ± .33	5.93	9.41
Blond French	Collignon (M) (Hrdl)	100	63.0		
Irish	Browne (Hrdl)	102	64.3		
English and Scotch	Beddoe (M) (Hrdl)	20	65.1		
Old Americans	Hrdlička	727	65.6		
Runo Island *	Hilden (A. S.)	79	65.88		
Sardinians	Collignon (Hrdl)	88	66.6		
English	Beddoe (Hrdl)	21	67.0		
Irish	Hrdlička	35	67.3		

Skeletal Material	Authority	No.	M.
Scotch	Turner (H) (M)		38.9
Franks of Hainaut	Houzé (H)		43.9
Portuguese	(H)		44.4
Teneriffe, "Nordics"	Hooton		45.6
Spanish	Hoyos Sainz (H) (M)		46.0
Azores	(H)		46.4
English and Scotch Neolithic	Morant	15	46.6
Teneriffe	Hooton		47.5
Whitechapel	Morant	70	47.6
Moorfields	Macdonnell (H)		47.6
Anglo-Saxon	Morant	19	48.0
Orotava	(H)		49.5
Males and Females			
Alamanni of Switzerland	Schwerz (H)		46.8
Alamanni of Augst	Schwerz (H)		48.0
Burgundians	Schwerz (H)		49.3

Differences between Means, in Index Points

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Spain	Norway	Sweden
Rif	--	..			..	..	8.52	4.81	2.83	29.38	3.71	..	.86
Senhaja	1.35	--	..	..	..	..	7.17	3.46	3.18	28.03	4.06	..	1.21
Ghomara	.28	1.07	--	..	..	..	8.24	4.53	3.11	29.10	3.99	..	1.14
Sheshawen	2.48	1.13	2.20	--	..	..	6.04	2.33	5.31	26.90	6.19	..	3.34
Arabs	2.73	1.38	2.45	.25	--	..	5.79	2.08	5.46	26.65	6.34	..	3.49
Shluh	3.55	2.20	3.27	1.07	.82	--	4.97	1.26	6.38	25.83	7.26	..	4.41

Difference of Means equals X times P.E.

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Kabyles	Shawia	Irak	Negroes	Spain	Norway	Sweden
Rif	--	..	..	..	..	..	9.92	7.64	3.82	38.16	5.80	..	2.77
Senhaja	3.21	--	..	..	..	..	7.80	4.87	3.93	32.24	5.64	..	2.69
Ghomara	.50	1.72	--	..	..	..	8.33	5.66	3.50	31.63	4.93	..	1.96
Sheshawen	3.07	1.19	2.16	--	..	..	4.99	2.20	4.70	23.39	5.84	..	3.71
Arabs	7.00	2.03	3.18	.24	--	..	5.73	2.54	6.00	28.34	7.64	..	5.72
Shluh	9.34	4.40	5.27	1.16	1.26	--	5.52	1.85	8.18	31.50	10.52	..	10.76

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The Mesopotamian Bedawin, due to their excessive nose length, reach the lower borders of leptorrhiny, almost equalling Barras' smaller group of Spanish, and lower than his larger group. Among the European groups chosen, the Spanish and Mme. Schreiner's Norwegians seem the most leptorrhine, and the other North European peoples less so, especially those of British ancestry. The Sardinians, usually considered as classical Mediterraneans, differ considerably from the Spaniards. Of all the groups presented for comparison by means of the probable error, the Swedes are most like the Riffians.

Of the skeletal groups, the Scotch and the Hainaut Franks are the most leptorrhine, then the various purer Iberian groups, and then the rest of the northern samples. The ancient and modern Canarians cover a considerable range. Except for the modern Scotch and the aberrant group of Franks, the Nordic groups in general are slightly less leptorrhine than the inhabitants of the Spanish peninsula, although this distinction is far from clear.

The only general conclusion one can draw from a comparison of the Riffians with European groups is that they resemble both the Spanish and North European peoples, perhaps most strongly the latter.

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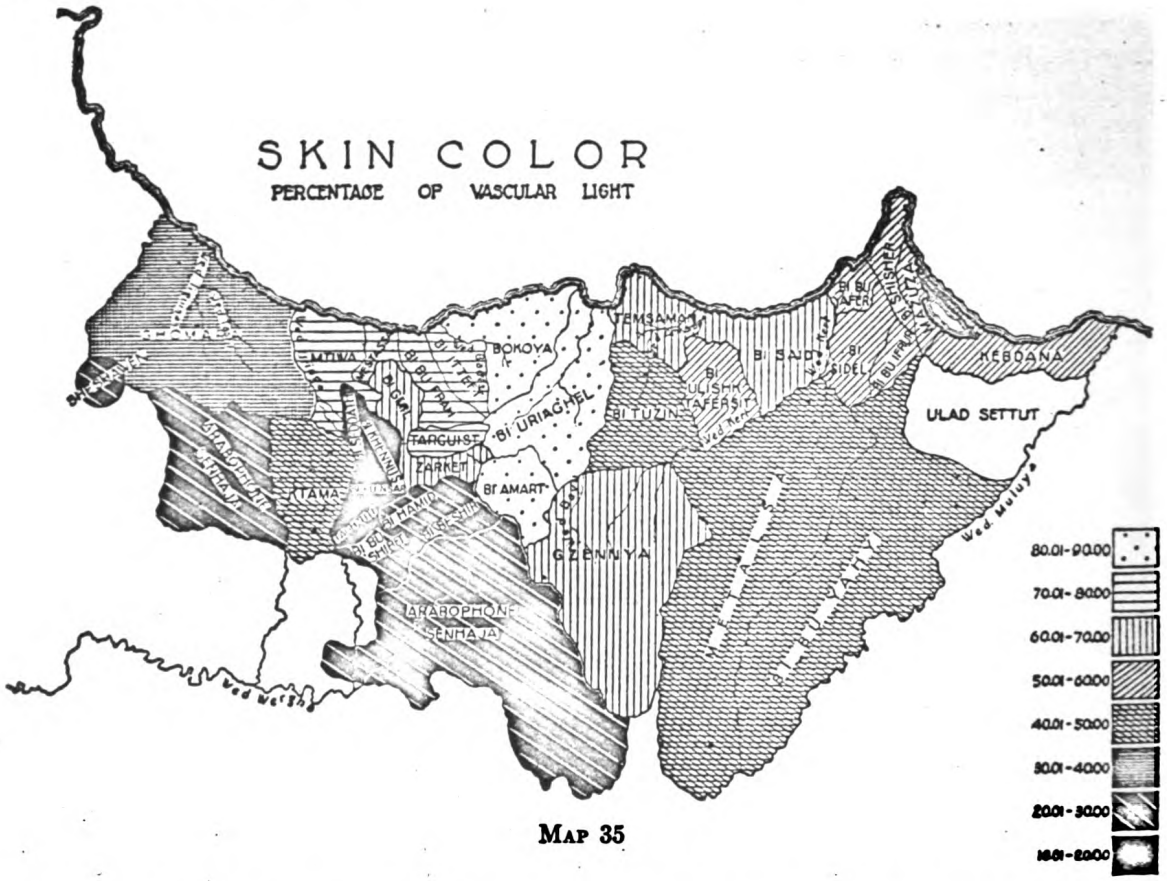
CHAPTER XVIII

PIGMENTATION OF THE SKIN, HAIR, AND EYES

SKIN COLOR

DURING the seasons of 1925, 1926, and 1927, the von Luschan Hautfarbentafel was used to determine skin color, and in 1928 observations without any chart were taken. The observations and matchings were done on three parts of the body; the forehead, volar surface of the forearm, and breast.



MAP 35

The color of the forehead represented the maximum tanning since this part of the body is always exposed. Usually the breast was habitually covered, as well as the volar surface of the forearm, but in some cases it appeared that on no part of the body could untanned areas of skin be found. The tanning of the forehead seemed to differ with the seasons, hence one must not attach as much importance to it as to the untanned skin color.

The von Luschan chart, although in common use, is not wholly satisfactory. The material, as Martin remarks,[1] reflects the light and does not approximate the texture of

[1] Rudolf Martin, *Lehrbuch der Anthropologie*, vol. I, pp. 206–207.

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human skin. The colors are wrongly graduated and do not adequately represent existing human conditions. The numbers most frequently met with among Riffians, as among Europeans, are 3 and 7. Numbers 1 and 2 are seldom encountered, and numbers 4 to 6, shades of yellowish, unvascular brown, interrupt the more or less logical sequence, 3, 7, 8, 9, 10, 11, 12, 13, etc. I have divided this range as follows: light, 3, 7, 8, 9; medium, 10, 11, 12, 13; dark, 14 and all thereafter. The divisions are of course purely arbitrary but were made because they seem best to coincide with my own observations made in 1928.

TABLE 33. SKIN COLOR[1]

UNEXPOSED

By percentages

	No.	Light	Medium	Dark	Yellowish	
Total Rif	530	65.47	29.81	4.34	.38	No. 4 von Luschan
		(347)	(158)	(23)	(2)	
Total Senhaja	197	29.44	26.95	43.13	.51	Yellow-white, no
		(58)	(53)	(85)	(1)	scale used
Ghomara	73	34.25	39.73	24.66	1.36	No. 2 von Luschan
		(25)	(29)	(18)	(1)	
Sheshawen	28	21.43	78.57			
		(6)	(22)			
Arabs	93	9.68	43.01	47.31		
		(9)	(40)	(44)		
Shluh	277	9.78	39.85	49.67	.70	No. 4 von Luschan
		(27)	(110)	(137)	(2)	
Kebdana		57.14	35.71	7.15		
Masuza		56.67	33.33	10.00		
Galiya		58.18	40.00	1.72		
Nomads		44.83	48.28	6.89		
Said		63.33	36.67			
Ulishk		54.72	39.62	5.66		
Temsaman		65.31	32.65		2.04	
Tusin		50.00	47.37	2.63		
Gsennaya		63.64	21.82	14.54		
Urriaghel		85.94	14.06			
Amart		81.82	18.18			
Targuist		77.78	16.67	5.55		
Bokoya		83.33	4.17	8.33	4.17	
Maritimes		72.73	22.73	4.54		
Zarket		68.00	28.00	4.00		
Bu Nsar		20.00	8.00	72.00		
Hamid		22.22	11.11	66.67		
Taghsuth		13.56	23.73	62.71		
Ktama		50.00	9.09	36.36	4.55	
Ar. Sen.		27.66	53.19	19.15		

[1] In this and following tables, figures in parentheses represent actual frequencies.

EXPOSED (FOREHEAD)

By percentages

	No.	Light	Medium	Dark	Yellowish-brown	Others
Total Rif	530	11.51	28.11	60.00	.38	
		(61)	(149)	(318)	(2)	
Total Senhaja	197	5.58	16.24	77.67	.51	
		(11)	(32)	(153)	(1)	

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	No.	Light	Medium	Dark	Yellowish-brown	Others
Ghomara	73		20.55	79.45		
			(15)	(58)		
Sheshawen	28	17.86	60.71	21.43		
		(5)	(17)	(6)		
Arabs	93	2.15	10.75	81.10		
		(2)	(10)	(81)		
Shluh	277	1.44	9.39	88.82	.35	
		(4)	(26)	(246)	(1)	
Kebdana		7.15	49.99	42.86		
Mazuza		10.00	33.33	56.67		
Galiya		13.12	43.44	43.44		
Nomads			17.24	82.76		
Said		13.32	10.00	76.68		
Ulishk		7.55	18.87	73.58		
Temsaman		6.12	22.44	69.40	2.04	
Tusin		13.16	26.32	57.89	..	2.63 (1 No. 2)
Gzennaya		18.18	27.27	54.55		
Urriaghel		14.06	26.56	59.38		
Amart		13.64	40.91	45.45		
Targuist		27.78	27.78	44.44		
Bokoya		20.83	16.67	62.50		
Maritimes			36.18	63.82		
Zarket		24.00	32.00	44.00		
Bu Nsar		8.00		92.00		
Hamid			16.67	83.33		
Taghzuth		3.39	6.78	89.83		
Ktama		1.54	22.73	72.23		
Ar. Sen.			25.53	74.47		

Among the "lights" I have listed a number of individuals whose forehead color was a plain, vivid red, with no equivalent on the von Luschan scale, the wind and sun burnt hue that the skin of a blond takes on in the course of a lifetime of exposure. This color will be familiar to most readers as the hue of fishermen, trappers, and other outdoor men. Since it was always associated with a light unexposed skin color, usually number 3 or number 7 of the von Luschan chart, I have included it among the "lights." Its distribution follows:

	No.	No. of Reds	Percentage of Reds		No.	No. of Reds	Percentage of Reds
Total Rif	530	17	3.21	Gzennaya	55	0	
Total Senhaja	197	5	2.54	Urriaghel	64	0	
Ghomara	73	0	...	Amart	22	0	
Sheshawen	28	0	...	Targuist	18	2	11.11
Arabs	93	0	...	Bokoya	24	0	
Shluh	277	0	...	Maritimes	22	0	
[illegible]bdana	14	1	7.14	Zarket	25	5	25.00
[illegible]uza	30	1	3.33	Bu Nsar	25	0	
[illegible]ya	55	1	1.82	Hamid	18	0	
[illegible]ds	29	0	...	Taghzuth	59	0	
[illegible]	30	3	10.00	Ktama	22	0	
[illegible]	53	4	7.57	Ar. Sen.	47	0	
[illegible]	38	4	10.50				

Methods of Obtaining Skin Color Data

	By von Luschan Chart	By observation	Total		By von Luschan Chart	By observation	Total
[illegible]st	16	2	18	Total Rif	528	2	530
[illegible]ar	1	24	25	Total Senhaja	93	104	197
[illegible]	5	13	18	Ghomara	44	29	73
[illegible]th	9	50	59	All others	all	none	
[illegible]	6	16	22				

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The category of *yellowish* and that of *yellowish-brown* have received special treatment. The numbers 2, 4, 5, 6 of the von Luschan scale are supposed to contain no vascular elements, and thus to differ from pinks and browns of equal intensity listed further along the scale. Martin calls number 2 "gelbich-weiss," numbers 4 and 5 "gelbich," and number 6, along with 22–25, "hellbraunlich."

The occurrence in the present series of these colors is as follows:

	Unexposed	Forehead
Temsaman	No. 4	No. 6
Bokoya	No. 4	No. 5
Ktama	Yellow-white	Medium brown
Ghomara	No. 2 (arm) No. 4 (breast)	No. 13
Shluh No. 1	No. 4	No. 6
Shluh No. 2	No. 4	No. 18

Thus only six individuals are found with yellowish or unvascular tints of the unexposed skin, and of these only the Temsaman, Bokoya, and Shluh No. 1 individuals, of those taken on the von Luschan scale, have a corresponding unvascular tint of the forehead. The Ktama individual falls into this class, making the total four.

Of the other two, the Ghomaran has a forehead color of "medium" intensity and Shluh No. 2 has one which falls into the category of "dark."

In the tables, I have put the yellowish tints in a special column in the untanned classification, and in the forehead color table I have put under yellowish-brown only those foreheads which have been found to correspond with a yellowish untanned color. All the other instances of 4, 5, and 6 on the forehead coincided with a normal 3 or 7 on the breast or arm.

The classification "light," numbers 3, 7, 8, and 9, are colors such as one would normally find in Europeans with a considerable increment of Nordic or North European blood; a skin almost without pigment, and made pink by the presence of capillaries close to the surface of the skin. Under "medium" comes the color range usually found among South European Whites of brunet stock, with black hair and dark eyes; a skin more deeply pigmented than and not as highly vascular as the former. Under "dark" are included those hues which are found, in the south of Europe, among persons in whom the possession of a slight increment of Negro blood is visible, and all shades of brown deeper than this. I intend this category to imply, although not to establish in each individual case, the possibility of Hamitic or negroid admixture.

Although this method of lumping together the skin color observations into three categories may be somewhat crude, it has the advantage of a greater reliability than the confusing and specious accuracy of a strict compilation, number by number, of von Luschan's categories.

It may be seen that in the unexposed skin color, the Riffians present a majority with tints comparable to North Europeans, and a very small percentage of darks. There is a considerable break in skin color proportions between them and the Ghomara, the next lightest Moroccan group, with slightly more than half the proportion of this category. The Senhaja run even darker, with a considerable increment of true darks. The Arabs and Shluh are comparable to the Senhaja in possessing over 40 per cent of darks, but with only a third as many lights. The Senhaja and Ghomara are clearly intermediate between the

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Riffians and the Arabs and Shluh in skin color. The small Sheshawen sample is without darks, and the light contingent is small. They run to medium shades, and appear very homogenous in this character.

Within the tribes, Beni Urriaghel, Beni Amart, Targuist, and Bokoya distinguish themselves as notably light. Gzennaya does not exceed the Riffian mean. Notably low percentages of vascular light are to be found among the Nomads, and among all the Senhaja but Zarket and Ktama; Taghzuth, with only 13 per cent, is but slightly higher than the Shluh. In the percentages of darks, the Senhaja show themselves at great variance from the Riffians; indeed, in Beni Bu Nsar, Beni Hamid, and Taghzuth, they have the highest proportion of all our Moroccan series, a fact well substantiating the reputation as negroids which these people bear among Riffians. The Nomads do not exhibit a high proportion of darks; the bulk of their skin colors lie in the medium category. Lowest percentages of darks are not confined to the same limited area as high ratios of vascular lights; the region where the dark skin shades have penetrated least extends from the Maritime tribes to Galiya along the coast, with the exception of Bokoya and the addition of Zarket and Beni Amart, showing that although lightest shades may be concentrated in the Central Rif, a secondary region of survival stretches along the coast from this nucleus eastward into Galiya.

In the color of the forehead, which, as has been said, is less reliable than the unexposed color owing to seasonal variation, the percentages follow those of the first category tribally, although being of course much lower in lights and higher in darks. The Nomads, Beni Bu Nsar, and Taghzuth, with over 80 per cent of dark foreheads, show clearly the traditional lines of invasion. It is interesting to note that the Nomads, who are much lighter than the dark Senhajan tribes in unexposed skin color, are capable of tanning to a hue as dark as theirs.

Shapiro,[1] in his study of the descendants of the mutineers of the *Bounty*, finds that the hybrids resemble the English in unexposed skin color, while deriving from their maternal Polynesian line the ability to tan almost as dark as a native when constantly exposed to the sun. Some such mechanism may be at play here, especially among the Nomads, although I hesitate to confirm the parallelism until a study has been made upon the skin color of Europeans living in arid, tropical climates. The French colonists, certainly no lighter than the Riffians in unexposed skin color, seem to tan as deeply as do the latter, when leading an outdoor life. In America it is well known how dark a white person may become by constant exposure to the summer sun, especially since sun-tanned tints have become fashionable among women. The Riffians are not as a whole any darker in exposed skin color than Americans who have just returned from a summer at the beach. Some of the Riffians, like some North Europeans, are unable to tan, but simply burn and peel time and again throughout the hot weather. Others, as has been noted, turn a permanent livid red.

It will be noted that the Sheshawen people preserve a considerable harmony between the unexposed skin color and that of the forehead; the reason is that the Sheshawen men measured were all artisans and shopkeepers who spend their lives indoors, or in palmetto-shaded streets, shunning the direct rays of the sun.

[1] H. L. Shapiro, *The Descendants of the Mutineers of the "Bounty,"* Memoirs of Bernice P. Bishop Museum, vol. XI, no. 1, p. 48.

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FRECKLING

In working up the data on freckling I have employed the same system of direct comparison used in the treatment of the quantitative morphological observations; by seriating each group into the categories of absent, ssm., sm., +, ++, and +++, by giving each category a numerical value on a scale from 1 to 100, and by calculating the mean. Thus comparisons between groups are limited to a single column and differences may be more readily visualized. A detailed explanation of this system will be found on page 000. For the six major groups percentages and raw data are presented as well.

TABLE 34. FRECKLES

By percentages

	No.	abs.	ssm.	sm.	+	++	+++
Total Rif	530	77.28	.57	11.12	9.05	1.51	.57
		(409)	(3)	(59)	(48)	(8)	(3)
Total Senhaja	197	86.28		5.08	7.68	1.02	
		(170)		(10)	(15)	(2)	
Ghomara	73	86.30		6.85	5.48	1.37	
		(63)		(5)	(4)	(1)	
Sheshawen	28	82.15		3.57	10.71	3.57	
		(23)		(1)	(3)	(1)	
Arabs	93	81.71		10.76	7.53		
		(77)		(9)	(7)		
Shluh	277	67.86		18.42	12.28	1.44	
		(188)		(51)	(34)	(4)	

By means

Kebdana	4.14	Zarket	12.00
Mazuza	3.33	Bu Nsar	4.00
Galiya	12.30	Hamid	1.39
Nomads	11.20	Taghzuth	.85
Said	7.50	Ktama	2.27
Ulishk	5.66	Ar. Sen.	13.30
Temsaman	8.66		
Tusin	8.56	Total Rif	8.54
Gzennaya	9.56	Total Senhaja	5.84
Urriaghel	7.04	Ghomara	5.48
Amart	9.10	Sheshawen	8.93
Targuist	15.56	Arabs	6.18
Bokoya	10.41	Shluh	11.82
Maritimes	12.51		

Freckling is usually taken to indicate a mixture, and is often found in connection with red hair. It is a phenomenon frequently encountered among Scotch and Irish. Hrdlička finds 4.5 per cent of it among Old American males, a much lower percentage than that obtained in the Rif, and probably lower than among the Scotch or Irish. In the Rif it may indicate a mixture between a blond and a brunet stock, but is curiously not found in great quantity where blondism is most pronounced. In the east, it seems to lie near the invasion route; in the west, it is associated with the Rif-Senhajan borderlands and the areas of Arab influence. It is notably low in the purer Senhajan tribes.

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Its presence among the Shluh indicates for the most part negroid admixture. Unlike in the Rif, the freckles were large and found mostly on persons of obvious negroid extraction. Such freckling on negroids is frequently encountered in the United States, and perhaps suggests the presence of some blondism in the white side of the mixture.

LIP SEAM

The prominence and visibility of this thin band of histologically transitional tissue separating the membrane of the lip from the integument is subject to racial variation both in prominence and visibility and may be used as a corollary of pigmentation. Among Negroes it is often raised above the surface of either side, as well as being wide and very visible. Among Whites it is flush with the rest of the lip and is most visible in brunets. In blonds it is often impossible to see except by close scrutiny.

In the accompanying table the category "absent" indicates a lip seam of the last mentioned type. In the groups studied the lip seam appeared no more accentuated than among Europeans. Among the six Moroccan groups there appeared but two variations from a general norm. The Senhajan tribes of Beni Bu Nsar, Beni Hamid, and Taghzuth have means equivalent to or over fifty, while the Central Riffian tribes of Beni Amart, Beni Urriaghel, and Gzennaya run below forty. In the former case a negroid element is perhaps indicated, and in the latter the blond element is clearly responsible.

TABLE 35. LIP SEAM

By percentages

	No.	abs.	sm.	+	++
Total Rif	530	12.64 (67)	5.47 (29)	74.31 (430)	7.58 (4)
Total Senhaja	197	5.08 (10)	4.06 (8)	90.14 (177)	.72 (2)
Ghomara	73	13.70 (10)	10.96 (8)	72.60 (53)	2.74 (2)
Sheshawen	28	14.29 (4)		85.71 (24)	
Arabs	93	11.83 (11)	8.60 (8)	78.49 (73)	1.08 (1)
Shluh	277	18.05 (50)	4.69 (13)	74.74 (207)	2.52 (7)

By means

Kebdana	48.21	Zarket	42.00
Mazuza	46.67	Bu Nsar	51.00
Galiya	47.27	Hamid	50.00
Nomads	45.69	Taghzuth	49.58
Said	48.33	Ktama	45.46
Ulishk	45.76	Ar. Sen.	42.55
Temsaman	40.81		
Tuzin	44.74	Total Rif	42.75
Gzennaya	32.73	Total Senhaja	46.70
Urriaghel	36.72	Ghomara	41.11
Amart	38.64	Sheshawen	42.86
Targuist	47.80	Arabs	42.11
Bokoya	41.66	Shluh	40.43
Maritimes	40.91		

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HAIR COLOR, HEAD

In observing the color of the head hair, I was impeded by the recently adopted Riffian custom of completely shaving the head. One working a few years earlier would have encountered ideal hair samples in the form of long braided pig-tails, a number of which, surviving among absentee Riffians and those come to manhood since the war, showed that I may have recorded many of the heads too dark. This is particularly true of blacks and dark browns; pig-tails black or almost black at the roots became dark or medium brown a few inches further along.

TABLE 36. HAIR COLOR, HEAD

By percentages

	No.	Black	Dark brown	Reddish-brown	Light brown	Light
Total Rif	504	43.74	46.32	4.38	5.38	.20
		(220)	(233)	(22)	(27)	(1)
Total Senhaja	190	57.89	35.26	3.16	3.68	
		(110)	(67)	(6)	(7)	
Ghomara	73	45.21	49.32	1.37	4.11	
		(33)	(36)	(1)	(3)	
Sheshawen	25	32.00	68.00			
		(8)	(17)			
Arabs	87	80.46	18.16		1.38	
		(70)	(16)		(1)	
Shluh	270	68.89	25.93	4.07	1.11	
		(186)	(70)	(11)	(3)	
Kebdana		38.46	53.85	7.69		
Masuza		42.86	46.43		7.14	3.57
Galiya		59.62	34.62	1.92	3.85	
Nomads		41.38	51.72	3.45	3.45	
Said		22.22	62.96	11.11	3.70	
Ulishk		44.90	48.98	6.12		
Temsaman		38.30	55.32	6.38		
Tuzin		29.41	55.88	5.88	8.22	
Gsennaya		37.04	53.70	1.85	7.41	
Urriaghel		45.90	40.98	1.64	11.48	
Amart		54.55	22.73	9.09	13.64	
Targuist		58.82	23.53	11.76	5.88	
Bokoya		43.48	39.13	4.35	13.04	
Maritimes		45.46	50.00	4.54		
Zarket		37.50	54.17	8.33		
Bu Nsar		64.00	24.00	12.00		
Hamid		50.00	38.89		11.11	
Taghzuth		66.10	32.20		1.69	
Ktama		47.62	38.10		14.29	
Ar. Sen.		61.90	33.33	2.38	2.38	

COMPARATIVE DATA

By percentages

North Africa	Authority	No.	Black	Dark brown	Reddish-brown	Light brown	Light	Red
Kabyles	R.-Mac I. and W.	42	90.48	5.76	4.76			
Shawia	R.-Mac I. and W.	55	96.36	1.82	1.82			
Asia								
Irak Bedawin	Ehrich	33	90.91	9.09				

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Europe	Authority	No.	Black	Dark brown	Reddish-brown	Light brown	Light	Red
Italy								
Sardinia	Livi	6,685	54.6	43.4	..	1.7		.2
Calabria	Livi	13,320	43.9	52.1	..	3.7		.2
Sicily	Livi	32,806	38.3	56.3	..	5.0		.4
Italy	MacAuliffe	142	5.14	85.27	2.94	5.88	..	.73[1]
Italians in U. S. Army	D. and L.[2]	3,486	9.78[3]	83.54	..	5.91	.60	.17
Spain								
Spain	MacAuliffe	127	13.92	74.57	3.28	6.54	..	.81
Spaniards in U.S. Army (C. W.[4])	(Topinard)	..	39.4	54.3	..	4.2	.6	.3
France								
France	MacAuliffe	6,652	4.53	80.12	2.86	10.00	1.24	1.16
French in U. S. Army (C. W.)	(Topinard)	..	10.4	53.2	..	29.0	4.4	1.9
French in U. S. Army	D. and L.	1,429	4.39	72.25	..	13.88	2.71	.77
Belgium								
Belgians	MacAuliffe	117	1.78	73.10	2.57	13.38	2.67	3.46
Germany								
Baden	(L. and L.)	..	18.00	38.7	..	41.6		
Germans in U. S. Army	D. and L.	7,059	2.74	59.12	..	30.61	6.85	.68
Poland								
Poles in U. S. Army	D. and L.	2,399	..	55.50	..	33.35	7.58	.71
Sweden								
Sweden (total)	L. and L.	..	.2	27.1	..	62.5	6.9	3.3
Stockholms län	L. and L.	..	.1	24.8	..	62.5	9.8	2.8
Gotlands län	L. and L.	..	..	20.3	..	71.1	6.2	2.4
Sodermanlands län	L. and L.	..	.5	29.9	..	61.9	5.3	2.4
Norway								
Norway (total)	B. and S.	11,782	.01	20.00	..	50.00	28.65	1.3
S. Trondelag	B. and S.	600	..	15.9	..	64.3	18.5	1.2
N. Trondelag	B. and S.	478	..	17.4	..	59.9	21.4	1.5
Opland	B. and S.	739	.3	16.3	..	53.5	28.7	1.3
Sogn og Fjordane	B. and S.	704	.1	31.8	..	35.2	31.5	1.4
Eidfjord	A. Schreiner	38	..	42.11	..	26.32	31.58	
Hålandsdal	A. Schreiner	63	..	34.92	..	33.33	31.75	
Valle	A. Schreiner	130	..	6.15	..	36.92	56.92	
Scandinavians								
Scandinavians in U. S. Army (C. W.)		..	4.3	44.0	..	43.0	6.4	1.8
Great Britain								
Scotch insane	Tocher (G)	..	91.9		..	6.5		1.6
Scotch schoolboys	Tocher (G)	..	69.5		..	25.0		5.5
Scotch students	Macdonnell (G)	..	69.9		..	26.4		4.8
British schoolboys	Pearson (G)	..	61.3		..	35.0		3.7
English convicts	Goring	..	65.5		..	28.5	2.5	3.4
Scotch, U. S. Army (C. W.)	(Topinard)	..	11.2	59.5	..	19.4	5.2	2.7
Scotch, U. S. Army	D. and L.	2,045	5.18	64.64	..	22.88	5.28	2.00
Irish, U. S. Army	D. and L.	6,144	5.12	69.71	..	18.85	3.78	2.54
English, U. S. Army	D. and L.	4,196	3.17	66.38	..	23.57	5.50	1.38

[1] In MacAuliffe's material the *red* is a light red or reddish-blond, comparable to the red element which I have included under *light* in my material, and may thus be added to the *light* column in comparison. All other reds are undifferentiated, and may include reddish-browns.
[2] Davenport and Love.
[3] In all of Davenport and Love's material, the percentages given under *black* are designated in the original as *red-black and black*.
[4] Civil War. Where "U.S. Army" appears alone, service in the World War is meant.

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United States	Authority	No.	Black	Dark brown	Reddish-brown	Light brown	Light	Red
Old Americans	Hrdlička	1,009	1.1	75.0	..	16.0	5.3	2.6
U. S. Army (C. W.)	Gould	668,360	13.6	55.6	..	23.5	3.7	2.6
U. S. Army	D. and L.	100,000 *ca.*	5.17	66.59	..	21.94	5.00	1.30
Old American, Harvard students, fathers	Bowles[1]	438	4.79	58.68	..	34.02	1.14	1.4
Same, sons	Bowles	438	14.61	77.17	..	4.11	.91	3.2

[1] From unpublished material on Harvard students prepared by Gordon H. Bowles.

COMPARISON OF BRUNET PROPORTIONS

(Black and brown, light brown excepted[1])

By percentages

Group	Brunet
Total Rif	90.1
Total Senhaja	93.1
Ghomara	94.5
Sheshawen	100.0
Arabs	98.6
Shluh	94.8
Kebdana	92.3
Mazuza	88.3
Galiya	94.2
Nomads	93.1
Said	85.2
Ulishk	93.9
Temsaman	93.6
Tusin	85.9
Gzennaya	90.7
Urriaghel	86.9
Amart	77.3
Targuist	82.4
Bokoya	82.6
Maritimes	95.5
Zarket	91.7
Bu Nsar	88.0
Hamid	88.9
Taghsuth	98.3
Ktama	85.7
Ar. Sen.	95.2
Comparative Data	
Irak Bedawin	100.0
Shawia	98.2
Sardinia	98.1
Calabria	96.1
Kabyles	95.2
Sicily	94.6
Spain, U. S. Army (C. W.)	93.7
Italy, U. S. Army	93.3
Scotch insane	91.9
Harvard, sons	91.8
Italy	90.4
Spain	88.5
France	84.6
France, U. S. Army	76.6
Old Americans	76.1
Belgium	74.9
Irish, U. S. Army	74.8
Americans, U. S. Army	71.7
Scotch, U. S. Army (C. W.)	70.9
Scotch students	69.9
Scotch, U. S. Army	69.8
Scotch schoolboys	69.5
English, U. S. Army	69.5
English convicts	65.5
France, U. S. Army (C. W.)	63.6
Harvard, fathers	63.4
Germans, U. S. Army	61.9
British schoolboys	61.3
Americans, U. S. Army (C. W.)	59.2
Baden	56.7
Poland, U. S. Army	55.5
Scandinavia, U. S. Army (C. W.)	48.3
Eidfjord	42.1
Hålandsdal	34.9
Sogn og Fjordane	31.9
Sodermanlands län	30.4
Sweden, total	27.3
Stockholms län	24.9
Gotlands län	20.3
Norway (total)	20.0
North Trondelag	17.4
Opland	16.6
South Trondelag	15.9
Valle	6.2

[1] In the Davenport and Love material, red-black and black have been included under dark since it is impossible to separate the elements included. The error will, however, be very slight.

All browns not reddish nor very light were lumped under the category "dark brown," on account of the absence of any sharp dividing line in this range. Browns with a reddish tinge, auburn, and other shades of red not utterly light were classed as reddish-brown; and the type of hair usually called "fair," but not pure blond, was classed as light brown. Pure

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light, golden-red, golden, and ash blond, were included under "light." At present, however, this does not concern us since such categories occur only, with one exception, under beard color.

The Riffians are essentially a dark haired group of people. Blond hair is rare, but by no means absent. I measured but one individual with pure light, in this case golden, head hair; but of course saw dozens of others possessing this feature. Those whom I classed as light brown would, to the casual observer, appear blond.

The Riffians, as is to be expected, are the lightest haired of Moroccan groups investigated; the Ghomara, however, and also the Senhaja, are only slightly darker. A certain degree of blondism appears characteristic of the entire north. The Arabs and Sheshawen Moors are almost pure brunets, whereas the Shluh exhibit latent blond tendencies far in the minority. Among the Riffian tribes, the greatest blondism in head hair is found in the recessive central area, although it is diffuse throughout; and in the Senhaja, Ktama and Beni Hamid are fairest.

While it is valid to compare with each other the color observations made by a single observer, if he be sincere and painstaking, it is difficult to adjust the personal equations of different men trained in different countries and working in territories distant from each other. In compiling the adjoining comparative list, with categories as near as possible to my own, I have tried to find for each area the results of two or more investigators, so as to check them against one another. It appears that the greatest discrepancies occur between black and the darker shades of brown; whereas with a few exceptions, the tints ranging from light brown through the purest blond, whatever the nomenclature employed, are fairly uniform within each area. If, then, we lump all brunet, i.e., black and dark brown, percentages, leaving a residual of blonds, near-blonds, and reds of varying degree, we will have the most accurate measure of comparison.

The Riffians, with 90 per cent of brunet head-hair traits, are far from being the pure blonds they have been romantically fancied. They are probably, however, the blondest group of similar size that the African continent has preserved to this day. The percentages, ranging from 77 per cent in Beni Amart to 95 per cent in the Maritimes, show the recessive belt across the central area, in the tribes of Beni Said, Beni Tuzin, Beni Urriaghel, Beni Amart, Targuist, Bokoya, and into the Senhaja. Their distribution does not entirely coincide with those of other recessive traits.

The simplified comparative table shows that the Bedawin, Shawia, southern and insular Italians, the Kabyles, and, according to some investigators, the Spanish as a whole, are even darker than the Riffians. They run considerably darker than the fairest tribes, which seem to be only a little darker than Americans and Scotch and Irish. This strengthens the impression which I felt in the Rif, that I was working among a people in no wise different in coloration from those with whom I was most familiar.

They are, of course, far darker in this factor than Scandinavians or North Germans, which peoples, upon close analysis, do not appear as fair as they are generally described. The figures of Lundborg and Linders, confirmed by those taken on Scandinavians in America, show less than 10 per cent of pure blonds in each Swedish province; the number of darks exceeds the pure blonds three to one, and the dominant hue is light brown. It is difficult to believe that a higher degree of blondism exists in Norway than in Sweden, although the scale and categories employed are the same in both cases.

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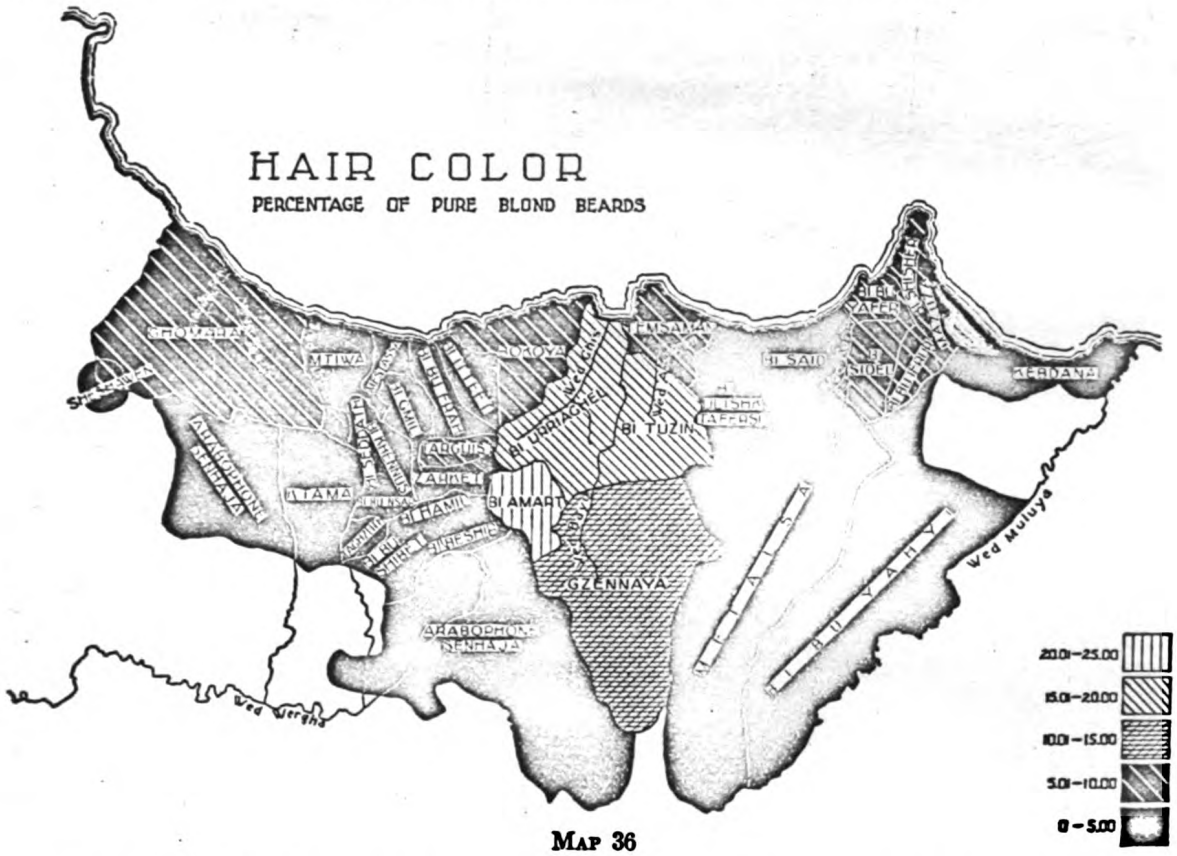
HAIR COLOR, BEARD

In the beard latent blondism is likely to come out. Fortunately most of the Riffians wear their beards of a length sufficient for accurate observation, and those tribes which practice shaving do so at satisfyingly distant intervals. It is their striking blondism of beard which has influenced travellers to call the Riffians blond, since with the turban constantly worn, the head hair, even in the days of the scalp-lock, was little in evidence. With less than 50 per cent of brunet beards, many tribes give an impression of great blondness, which is belied when an investigation of head hair is made. It is especially the presence of these beards which makes one feel that he is dealing with a northern people.



MAP 36

The distribution of brunet beards in the Rif and Senhaja follows that of the head hair, although of course in diminished extent; but the distribution of pure blond beards, as the map shows, strikingly follows that of skin color, and coincides with the area of strict recessiveness. It is interesting that the Senhaja and Ghomara, although possessing far fewer pure blond beards, contain at the same time relatively fewer brunet beards than the Riffian total.

Unfortunately there are no comparative data on beard color. Personally I feel that this observation, since it gives one more to work on in cases of mixed and partial blondism, is more important in such investigations than the color of the head hair. In this observation certain tribes come out fully as blond as many Scandinavian groups are in head color. One

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cannot prove that the Italians and Spaniards, who are not greatly darker in head hair, do not show a comparable disharmony, but I believe, from common observation, that their beards are only slightly lighter than their head hair. If a survey were made of beard color of Mediterranean peoples, it is reasonable to assume that Spaniards and Italians would come out far darker than Riffians, and, in respect to their head hair color, more homogenous.

I cannot but regard the presence of a high percentage of pure blond beards in the Central Rif as the most important phenomenon of hair color which has appeared in this investigation.

Let us observe the tables wherein the relationship of beard color to head hair color is shown. In the Rif, and in the other regions as well, black head hair, in 80 per cent and more of cases, draws with it black beards. The rest of the beards are not concentrated at dark brown, the next darkest color, but are distributed all along the scale. Dark brown head hair is accompanied in only 50 per cent of cases by beards of identical hue. Reddish-brown head hair tends to retain a similar color in the beard, or to maintain rufous tints throughout. Light brown head hair, to all intents and purposes, is already blond, or fair, and gives less than half its beards to the pure blond category. Except in the Rif it gives fewer blond beards than do darker shades of head hair.

TABLE 37. HAIR COLOR, BEARD

By percentages

	No.	Black	Dark brown	Reddish-brown	Light brown	Light
Total Rif	476	34.03	25.00	14.08	18.91	7.98
		(162)	(119)	(67)	(90)	(38)
Total Senhaja	179	46.37	18.99	13.97	17.87	2.79
		(83)	(34)	(25)	(32)	(5)
Ghomara	69	39.13	26.09	15.94	13.04	5.80
		(27)	(18)	(11)	(9)	(4)
Sheshawen	25	32.00	60.00	4.00	4.00	
		(8)	(15)	(1)	(1)	
Arabs	78	74.36	14.10	5.13	3.85	2.56
		(58)	(11)	(4)	(3)	(2)
Shluh	219	59.36	15.07	14.15	8.68	2.74
		(130)	(33)	(31)	(19)	(6)
Kebdana		30.77	30.77	23.08	15.38	
Mazuza		35.71	32.14		25.00	7.14
Galiya		43.40	18.87	9.43	20.75	7.55
Nomads		37.04	18.52	3.70	40.74	
Said		15.38	30.77	30.77	19.23	3.85
Ulishk		39.22	23.53	19.61	15.69	1.95
Temsaman		33.33	35.56	17.78	6.67	6.67
Tuzin		19.44	27.78	19.44	16.67	16.67
Gzennaya		31.91	38.30	2.13	14.89	12.77
Urriaghel		29.41	27.45	13.73	13.73	15.69
Amart		33.33	9.52	14.29	10.05	23.81
Targuist		35.71	7.14	21.43	28.57	7.14
Bokoya		33.33	16.67	16.67	27.78	5.56
Maritimes		42.86	9.52	10.05	28.57	
Zarket		31.82	22.73	22.73	18.18	4.55
Bu Nsar		40.91	18.18	13.64	22.73	4.55
Hamid		47.06	35.29		17.65	
Taghuzth		57.89	15.79	12.28	12.28	1.75
Ktama		45.00	15.00	10.00	30.00	
Ar. Sen.		42.50	12.50	20.00	15.00	5.00

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It is notable that in no case is the beard darker than the head hair, and in no case is the mustache darker than the cheek and jaw. The order of darkness then is: first, the head; second, the cheek and jaw; and third, the mustache. On the mustache itself the darkest hair is in the middle, right over the nasal sills, and the lightest on the tips, over the corners of the mouth. A luxuriant walrus mustache shows its blondism to greatest advantage.

BRUNET BEARDS (Black and dark brown)

	Percentage		Percentage
Total Rif	69.0	Tusin	47.2
Total Senhaja	65.4	Gzennaya	70.3
Ghomara	65.2	Urriaghel	56.9
Sheshawen	82.0	Amart	42.8
Arabs	88.5	Targuist	42.8
Shluh	74.4	Bokoya	50.0
		Maritimes	52.4
Kebdana	61.5		
Mezuza	67.8	Zarket	54.2
Galiya	62.3	Bu Nsar	59.1
Nomads	55.6	Hamid	82.4
Said	46.2	Taghzuth	73.7
Ulishk	62.8	Ktama	60.0
Temsaman	68.9	Ar. Sen.	55.0

BEARDS CALLED PURE LIGHT, RAW DATA

	Light red	Golden-red	Golden	Ash-blond	Total
Total Rif	6	8	21	3	38
Total Senhaja	1	2	2	..	5
Ghomara	1	..	3	..	4
Sheshawen	..	..	..	..	0
Arabs	1	..	..	1	2
Shluh	1	1	..	4	6

(The one example of pure light head hair is golden.)

INDIVIDUAL TENDENCIES TOWARDS BLONDISM

Four individuals had golden hair on arms and legs; 2 Arabs, with black head and beard hair; 1 light brown haired Beni Tuzin; and 1 Ghomaran with light hair and beard.

Five Shluh exhibited a peculiar tendency to have pure blond tufts of hair growing directly over the ears, as follows:

Adult	No.	Description
Dark brown head and beard	1	Light brown over ear
Adolescent		
Black head hair	2	Light brown over ear
Black head hair	1	Ash-blond over ear
Dark brown head hair	1	Ash-blond over ear

I observed this same phenomenon a number of times among Negroes from the Sahara. It seems to be associated in all cases with Negro mixture.

One Shluh with black head and beard hair had a few pure blond (not white) hairs in his head and beard, not more than a dozen in all.

Four Shluh with black head hair and light brown beards had a few ash-blond hairs growing in the tips of their mustaches.

One adolescent Shluh with black hair had golden fuzz on his cheeks, another had blond eyebrows.

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TABLE 38. HAIR COLOR: ASSOCIATION OF HEAD AND BEARD COLORS

By percentages

Head	Beard: Black	Dark brown	Reddish-brown	Light brown	Light	?	Total
Rif							
Black	80.60 (162)	4.48 (9)	4.98 (10)	7.46 (15)	2.49 (5)	(19)	(201) 220
Dark brown	..	50.00 (108)	19.90 (43)	23.15 (50)	6.95 (15)	(17)	(216) 233
Reddish-brown	..	..	63.16 (12)	26.32 (5)	10.53 (2)	(3)	(19) 22
Light brown	..	..	..	57.69 (15)	42.31 (11)	(1)	(26) 27
Light	..	..	..	..	100.00 (1)	..	(1) 1
?	..	15.38 (2)	15.38 (2)	38.46 (5)	30.77 (4)	(14)	(13) 27
Total	34.03 (162)	25.00 (119)	14.08 (67)	18.91 (90)	7.98 (38)	(54)	(476) 530
Senhaja							
Black	82.12 (83)	1.98 (2)	7.92 (8)	7.92 (8)	..	(9)	(101) 110
Dark brown	..	50.00 (32)	18.75 (12)	26.56 (17)	4.69 (3)	(3)	(64) 67
Reddish-brown	..	..	83.33 (5)	..	16.67 (1)	..	(6) 6
Light brown	..	..	..	100.00 (6)	..	(1)	(6) 7
?	..	..	..	50.00 (1)	50.00 (1)	.. (5)	(2) 7
Total	46.37 (83)	18.99 (34)	13.97 (25)	17.87 (32)	2.79 (5)	..	(179) 197
Ghomara							
Black	84.38 (27)	..	3.13 (1)	9.68 (3)	3.13 (1)	(1)	(32) 33
Dark brown	..	52.94 (18)	26.47 (9)	11.76 (4)	8.82 (3)	(2)	(34) 36
Reddish-brown	..	..	100.00 (1)	..	..	..	(1) 1
Light brown	..	..	..	100.00 (2)	..	(1)	(2) 3
Total	39.13 (27)	26.09 (18)	15.94 (11)	13.04 (9)	5.80 (4)	.. (4)	(6) 73
Sheshawen							
Black	100.00 (8)	..	..	..	..	..	(8) 8
Dark brown	..	88.24	5.57	5.57	..	..	(17) 17
?	..	..	..	..	..	(3)	3
Total	32.00 (8)	60.00 (15)	4.00 (1)	4.00 (1)	..	.. (3)	(25) 28

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ARABS

Head	Beard: Black	Dark brown	Reddish-brown	Light brown	Light	?	Total
Black	92.06	1.59	3.17	..	3.17	..	(63)
	(58)	(1)	(2)		(2)	(7)	70
Dark brown	..	71.43	14.29	14.29	..	..	(14)
		(10)	(2)	(2)		(2)	16
Light brown	..	..	..	100.00	..	100.00	(1)
				(1)			1
?	..	..	..	..	..	(6)	6
Total	74.36	14.10	5.13	3.85	2.56	..	(78)
	(58)	(11)	(4)	(3)	(2)	(15)	93

SHLUH

Black	84.42	1.95	9.09	3.90	.65	..	(154)
	(130)	(3)	(14)	(6)	(1)	(32)	186
Dark brown	..	57.69	17.31	23.08	1.92	..	(52)
		(30)	(9)	(12)	(1)	(18)	70
Reddish-brown	..	..	70.00	..	30.00	..	(10)
			(7)		(3)	(1)	11
Light brown	..	..	..	100.00	..	..	(1)
				(1)		(2)	3
?	..	..	50.00	..	50.00	..	(2)
			(1)		(1)	(5)	7
Total	59.36	15.07	14.15	8.68	2.74	..	(219)
	(130)	(33)	(31)	(19)	(6)	(58)	277

The individuals whose head hair colors are unknown are blonder in beard color than the series as a whole, to a very striking degree. Since doubt as to head hair color is caused by graying and baldness, it is apparent that the lighter haired individuals in our group are those with the greatest tendency to early loss of hair, if not to early graying. Unfortunately, having no means of determining age accurately, I was unable to secure useful data on these subjects.

RUFOUS TENDENCIES

In head hair color, the Riffians have the largest proportion of reddish shades of any Moroccan group, being closely followed by the Shluh and Senhaja. The Arabs and Sheshawen Moors, lacking reds, are approximated by the Ghomara with but a single individual. The segregation in beard color, however, includes the Ghomara in the red-bearing group. It is interesting that the Riffians, Senhaja, Ghomara, and Shluh all have almost exactly one-sixth red beards; it suggests that some constant recessive character is at work here.

Within the Rif, it is apparent that rufosity does not follow the pattern of beard color, skin color, and so many other features in which the Central Rif dominates the map; the centers of rufosity, as of freckling, lie to east and west of it, concentrated in Beni Said on the east and Zarket and Targuist on the west. In other words, rufosity is closely peripheral to the center of blondism, and follows the negative distribution of brunet traits as a whole.

Our comparative data indicate that rufosity is concentrated in Great Britain, particularly in the Keltic fringe areas, and is also prevalent among Old Americans, and to a lesser, but still prominent degree, in Scandinavia. The Kabyles possess it in a degree equivalent to the Riffians, whereas the European Mediterranean peoples, the Spaniards and south and

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insular Italians, largely lack it. The small series of Arabs totally lacks it. If one accepts MacAuliffe's data, one must place Spain, Italy, and France as high in rufosity as Scotland, and Belgium even higher. All other data for the Mediterranean region and France give much lower figures, and check each other, hence we have omitted from the table MacAuliffe's figures on this particular shade. All other data seem to agree to a satisfying extent.

TABLE 39. RUFOUS TENDENCIES IN HAIR COLOR

By percentages

	No.	Head	No.	Beard
Total Rif	504	4.38	476	17.02
		(22)		(81)
Total Senhaja	190	3.16	179	15.64
		(6)		(28)
Ghomara	73	1.37	69	17.39
		(1)		(12)
Sheshawen	25	..	25	4.00
				(1)
Arabs	87	..	78	6.41
				(5)
Shluh	270	4.07	219	15.07
Kebdana		7.69		23.08
Mazuza		..		7.14
Galiya		1.92		18.87
Nomads		3.45		3.70
Said		11.11		34.62

	Head	Beard
Ulishk	6.12	19.61
Temsaman	6.38	17.78
Tuzin	5.88	19.44
Gzennaya	1.85	8.51
Urriaghel	1.64	17.65
Amart	9.09	23.81
Targuist	11.76	28.57
Bokoya	4.35	16.67
Maritimes	4.54	22.73
Zarket	8.33	27.27
Bu Nsar	12.00	18.18
Hamid	..	
Taghzuth	..	12.28
Ktama	..	10.00
Ar. Sen	2.38	22.50

The accompanying table for head hair color indicates red-browns alone, since there were no examples of light red or golden-red head hair.

The table for beard color indicates red-brown, light red, and golden-red beards. It also indicates beards in which the mustache was of one color and the cheek and jaw of another — in these cases the cheek and jaw color contained the red element and the mustache was lighter. This occurred 5 times among the Riffians (Mazuza 2, Galiya 2, Maritimes 1), once (Ar. Sen) among the Senhaja, and twice among the Shluh.

COMPARATIVE DATA[1]

	Rufous
Scotland (Parsons)	6.5
Wales (Parsons)	5.8
Scotch schoolboys	5.5
Scotch students	4.8
Kabyles	4.8
Ireland (Parsons)	4.7
England (Parsons)	4.2
British schoolboys	3.7
English convicts	3.4
Sweden (total)	3.3
Harvard, sons	3.2
Stockholms län	2.8
Scotch, U. S. Army (C. W.)	2.6
Old Americans	2.6
Americans, U. S. Army (C. W.)	2.6
Gotlands län	2.4
Sodermanlands län	2.4
France, U. S. Army (C. W.)	1.9

	Rufous
Shawia	1.8
Scandinavia, U. S. Army (C. W.)	1.8
Scotch insane	1.6
N. Trondelagen	1.5
Harvard, fathers	1.4
Sogn og Fjordane	1.4
Opland	1.3
Americans, U. S. Army *	1.3
Norway	1.3
S. Trondelagen	1.2
Poland, U. S. Army	.7
Italy (Livi)	.6
Sicily	.4
Spain, U. S. Army (C. W.)	.3
Calabria	.2
Sardinia	.2
Irak	0

[1] Owing to the impossibility of separating the red-black from the black in Davenport and Love's material, I have used only their data on American native-born troops, and upon Poles, among whom no hair of this catagory was recorded found. No reds were given by Mme. Schreiner, nor were any furnished for the Baden material.

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Accepting all but the MacAuliffe material, then, we find the Riffians associated in rufosity with the most red-headed peoples in the world; the British of Keltic tradition, the Americans, and the Scandinavians. We find them differing markedly from their neighbors across the Mediterranean. If, as is usually considered, rufosity indicates a mixture between blond and brunet, we have ample evidence of such mixture in our area. Its concentration in Britain is usually interpreted as a direct admixture between North European and Mediterranean stocks, or between two dolichocephalic European stocks of opposite coloration. In the Rif, it is interesting to find so high a degree of rufosity in association with unadulterated dolichocephaly.

EYE COLOR

TABLE 40. EYE COLOR[1]

By percentages

	No.	Black	Dark brown	Light brown	Gray-brown	Green-brown	Blue-brown	Gray	Blue
Total Rif	529	.76	22.87	18.90	18.81	23.34	13.23	.19	1.89
		(4)	(121)	(100)	(99.5)	(123.5)	(70)	(1)	(10)
Total Senhaja	197	3.05	39.59	11.67	16.24	19.80	.15	..	.50
		(6)	(78)	(21)	(32)	(39)	(20)	..	(1)
Ghomara	73	1.36	23.29	16.44	13.71	34.25	9.59	..	1.36
		(1)	(17)	(12)	(10)	(25)	(7)	..	(1)
Sheshawen	28	..	42.85	25.02	14.28	7.14	10.71		
		..	(12)	(7)	(4)	(2)	(3)		
Arabs	93	1.08	38.71	22.58	17.20	17.20	3.23		
		(1)	(36)	(21)	(16)	(16)	(3)		
Shluh	274	4.38	43.61	27.55	8.03	11.50	4.74	.18	
		(12)	(119.5)	(75.5)	(22)	(31.5)	(13)	(.5)	
Kebdana		..	7.15	35.71	21.42	28.57	..	..	7.15
Mazuza		..	16.67	26.67	20.00	23.33	10.00	..	3.33
Galiya		1.82	14.55	20.91	21.82	22.73	12.72	..	5.45
Nomads		3.57	30.33	3.57	14.29	26.81	21.43		
Said		..	30.00	18.34	13.33	25.00	13.33		
Ulishk		3.78	21.69	11.32	21.70	16.98	22.64	..	1.89
Temsaman		..	30.62	20.41	14.28	20.41	14.28		
Tusin		..	43.42	7.89	15.79	14.47	13.15	..	5.28
Gzennaya		..	23.64	30.00	25.45	13.63	5.46	1.82	
Urriaghel		..	21.88	21.88	15.62	31.25	9.37	..	
Amart		..	9.09	9.09	31.82	18.18	22.73	..	9.09
Targuist		..	16.67	16.67	16.67	33.33	16.66		
Bokoya		..	22.92	29.17	8.33	33.33	8.33		
Maritimes		..	27.27	13.64	9.09	40.91	9.09		
Zarket		..	24.00	16.00	12.00	36.00	12.00		
Bu Nsar		..	40.00	8.00	12.00	28.00	12.00		
Hamid		..	61.11	5.56	5.56	11.10	16.67		
Taghzuth		3.39	47.46	10.17	27.12	11.86	..		
Ktama		13.64	45.44	4.55	13.64	9.09	9.09	..	4.55
Ar. Sen.		2.13	27.66	14.89	12.77	23.40	19.15		

[1] The occurrence of a fraction with the number of individuals in any given category means that an uneven number of persons with unlike or dark brown to light brown eyes was (or were) divided, half going to the category of each eye, in the former case, and to each shade, in the latter.

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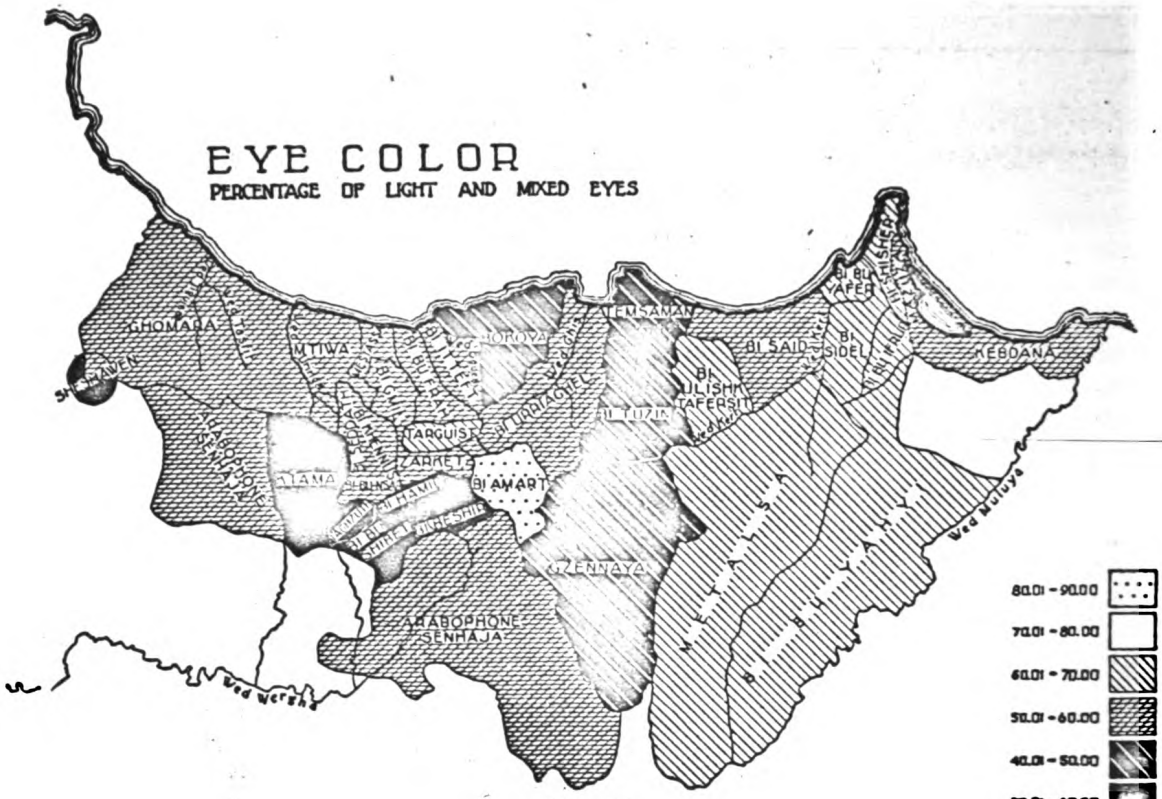
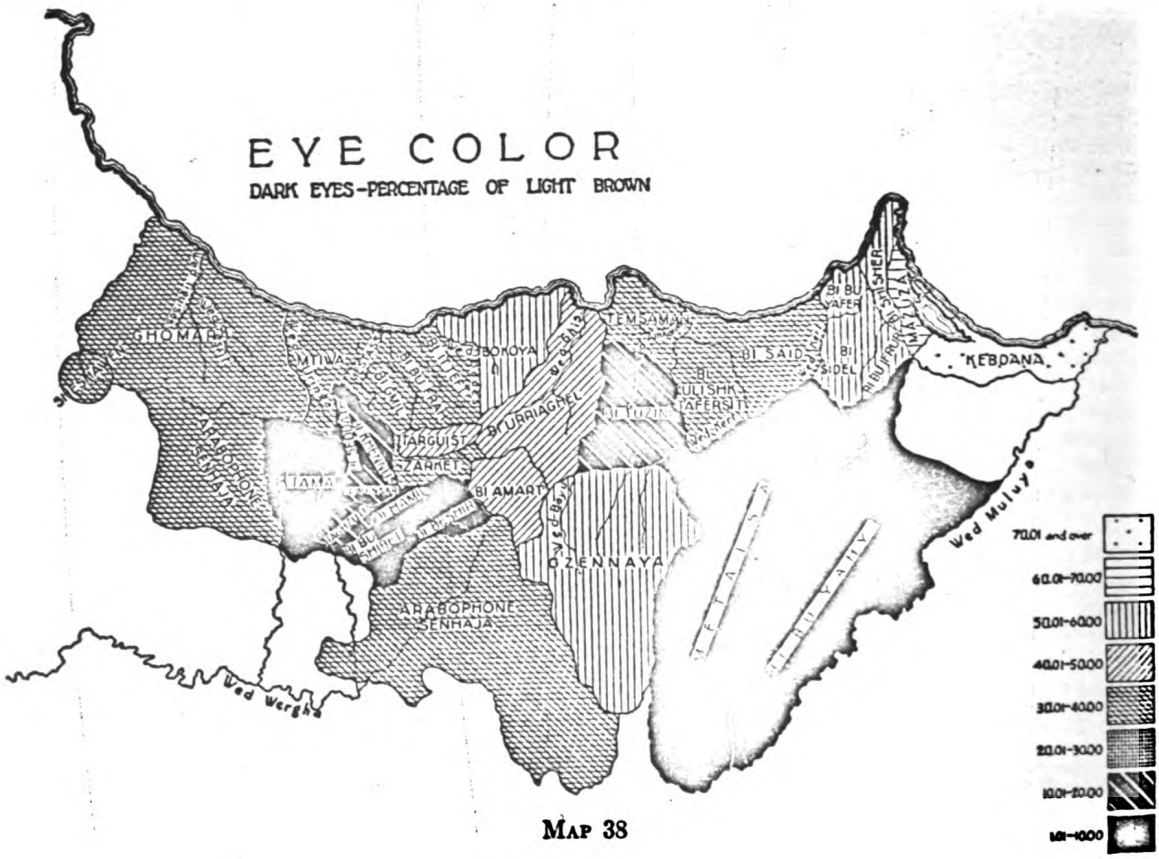


MAP 37



MAP 38

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Unlike Eyes

Six Riffians, two Arabs, and two Shluh, possessed unlike eyes, as follows:

	L.	R.
1 of Galiya	green-brown	light-brown ++
1 of Nomads	dark brown	green-brown
1 of Said	green-brown	light brown
1 of Ulishk	dark brown	gray-brown
1 of Tuzin	green-brown	dark brown ++
1 of Gzennaya	green brown	light-brown ++
Arab No. 1	light brown	green-brown
Arab No. 2	green-brown	dark brown
Shluh No. 1	green-brown	dark brown
Shluh No. 2	gray	dark brown

It will be observed that the lighter eye occurs on the left in six out of ten instances, an almost equal distribution. In the ten instances, the light element is eight times green, and twice gray; never blue. In three instances of inequality of pigment factors in the mixed eye, the eye is in every case green-brown. The dark eye is in six instances dark brown, and in four light brown.

Dark Eyes, Dark Brown Light Brown Mixed

In 25 individuals out of all the Moroccan groups, eyes were found in which both dark brown and light brown elements mingled, just as the light and brown factors mingle in a true mixed eye. The distribution of these is:

Urriaghel	2
Bokoya	1
Bu Nsar	2
Arabs	5
Shluh	15

In all but one instance, that of a Shluh, the irides were rayed. In the single case, they were zoned.

It is apparent that the two shades of brown represent different types of eye color, rather than gradations of one type, since they are thus able to mix. It is curious, however, that there is not more such mixture.

Dark Eyes, Distribution of Types

The table on the opposite page shows the percentile distribution of black and dark brown eyes on the one hand, and light brown on the other. The accompanying map will make this clearer. In this ratio the Zenatan and Senhajan invading routes show up as clearly as they do in the tables of cultural analysis. It is evident that some relationship of cause and effect must exist here; evidently dark brown represents the intrusive and light brown the earlier brunet eye color.

Basis of Calculation of the Degree of Pigmentation

In observing the color of mixed eyes, I was not satisfied with the triple classification of gray-brown, green-brown, and blue-brown, because so many eyes, gray, green, or blue,

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contained but single spots or flecks of brown or yellow pigment; throwing them into the mixed category, with an implication of equal amounts of brown and light factors, while at the same time other eyes, entirely brown except for a few rays or narrow zones of light color, entered the same comprehensive generalization.

TABLE 41. DARK EYES

	No.	Black and dark brown	Light brown
Total Rif	225	55.56	44.44
		(125)	(100)
Total Senhaja	105	80.00	20.00
		(84)	(21)
Ghomara	30	60.00	40.00
		(18)	(12)
Sheshawen	19	63.16	36.84
		(12)	(7)
Arabs	58	63.79	36.21
		(37)	(21)
Shluh	207	63.53	36.47
		(131.5)	(75.5)
Kebdana		16.67	83.33
Mazuza		38.47	61.53
Galiya		43.90	56.10
Nomads		90.48	9.52
Said		62.07	37.93
Ulishk		69.23	30.77
Temsaman		60.00	40.00
Tusin		84.61	15.39
Gzennaya		44.07	55.93
Urriaghel		50.00	50.00
Amart		50.00	50.00
Targuist		50.00	50.00
Bokoya		45.84	54.16
Maritimes		66.67	33.33
Zarket		60.00	40.00
Bu Nsar		83.33	16.67
Hamid		91.67	8.33
Taghzuth		83.33	16.67
Ktama		92.85	7.15
Ar. Sen.		66.67	33.33

In order to make this observation more exact, I devised the following five categories, to be applied to the iris pigment, irrespective of whether the eyes were gray-brown, green-brown, or blue-brown:

+++
Brown ..... The eye is almost entirely brown, there being only a very small amount of light factors in the iris.
++
Brown ..... The eye, while dominantly brown, nevertheless contains considerable light elements.
Even ..... The eye contains approximately equal amounts of light and dark factors.
++
Light ..... The eye, while dominantly light, nevertheless contains considerable brown elements.
+++
Light ..... The eye is almost entirely light, there being only a very small amount of dark factors in the iris.

In the list above, the word "Light," implies "Gray," "Green," or "Blue," as follows:

+++ +++
Brown is equivalent to gray, green, or blue-brown;
++ ++
Brown " gray, green, or blue-brown;
Even " gray, green, or blue-brown;
++ ++ ++ ++
Light " gray, green, or blue-brown;
+++ +++ +++ +++
Light " gray, green, or blue-brown.

Eye Color, Mean Scores

In presenting eye color, one is met by the confusion naturally consequent upon the existence of a great number of categories. The number of these lessens not only the value of each, since numbers of some are inevitably small, but also the ease with which they may

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be compared. In order to compare several tribes or other groups in some certain characteristic, such as eye color, it is best to have a single figure representing each. In order to effect this I have devised the Mean Score method of calculation.

TABLE 42. EYE COLOR, MIXED EYES

Tabulated on basis of degree of pigmentation

	No	+++ Brown	++ Brown	Even	++ Light	+++ Light
Total Rif	293	.68	11.26	57.34	24.23	6.49
		(2)	(33)	(168)	(71)	(19)
Total Senhaja	91	1.10	23.08	46.15	23.08	6.59
		(1)	(21)	(42)	(21)	(6)
Ghomara	42	..	19.05	52.38	28.57	
			(8)	(22)	(12)	
Sheshawen	9	..	33.33	44.45	22.22	
			(3)	(4)	(2)	
Arabs	35	..	14.28	50.00	32.86	2.86
			(5)	(17.5)	(11.5)	(1)
Shluh	66.5	1.51	19.55	45.85	31.58	1.51
		(1)	(13)	(30.5)	(21)	(1)

This consists of giving the different degrees of pigmentation scores from 1 to 10, as follows:

Blue	1	Mixed, $^{++}$brown	6
Gray	2	Mixed, $^{+++}$brown	7
Mixed, $^{+++}$light	3	Light brown	8
Mixed, $^{++}$light	4	Dark brown	9
Mixed, even	5	Black	10

I have given blue a lighter classification than gray because in mixtures blue-brown appears to be lighter than gray-brown, the mean score for blue-brown eyes in the total series of 1194 Moroccans being 4.33, whereas that for gray-brown comes to 5.09. In making these preliminary calculations I had determined on numbers 3–7, in order to find the precedence of blue and gray in the first two. There will be no doubt, I think, as to the precedence in 8, 9, and 10.

The method of calculation consists of multiplying the number in each category by its score, adding the results together, and dividing by N.

TABLE 43. EYE COLOR, MIXED EYES (continued)

Mean Scores for the Three Mixed Eye Colors

	Gray-brown	Green-brown	Blue-brown	Total mixed
Total Rif	5.03	4.26	4.23	4.75
Total Senhaja	5.15	5.13	3.95	5.49
Ghomara	5.50	4.76	4.59	4.90
Sheshawen	5.75	4.50	4.67	5.11
Arabs	5.06	4.59	4.00	4.87
Shluh	4.95	4.90	4.69	4.83
Total Moroccans	5.09	4.80	4.33	4.93

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This table was made in order to determine which of the three types of mixed eyes, determined on a basis of color, is associated with the least amount of pigment, which with the most, and which with an intermediate amount. The table makes its clear that a blue-brown eye is, on the average, the lightest, a green-brown intermediate, and a gray-brown darkest. The only example in which this order is not maintained, that of Sheshawen, contains the smallest number of subjects.

Light eyes are classed as gray and blue, containing no yellow or brown spots or flecks. Those which contain such brown pigment factors are classed as mixed. Of the light eyes, all are blue except for one individual in the Gzennaya, and one eye of one individual among

TABLE 44. EYE COLOR

Comparison of Mean Scores

Total Rif	6.30	Tuxin	6.56
Total Senhaja	7.33	Gzennaya	6.65
Ghomara	6.38	Urriaghel	6.53
Sheshawen	7.50	Amart	5.32
Arabs	7.22	Targuist	6.00
Shluh	8.19	Bokoya	6.52
		Maritimes	6.59
Kebdana	6.07		
Mazuza	6.10	Zarket	6.28
Galiya	6.10	Bu Nsar	6.80
Nomads	6.27	Hamid	7.33
Said	6.55	Taghzuth	7.49
Ulishk	6.13	Ktama	7.32
Temsaman	6.65	Ar. Sen.	6.55

the Shluh. Thus although the blue eyes appear, in the list of scores above, to be lighter in absolute quality than the gray, in groups all of which have a far greater number of pure dark than pure light eyes, the blue is numerically far in excess of the gray. The same tendency is found in the mixed eyes, in which group the green-brown, or intermediate type, is numerically dominant, whereas gray-brown, the darkest type, does not exceed blue-brown, the lightest type, to the extent one would expect in view of the large number of pure brown eyes in all of the groups. The total scores for the groups, and especially for the Moroccan total, exhibit this tendency. If, in the mixed eyes, dark pigmentation exceeded the light, the total scores should in each group, and in the total group, exceed 5.00; whereas in the total Moroccan group, and in each of the component groups excepting the total Senhaja and Sheshawen, the opposite is the case.

Briefly, then, despite the fact that pure blondism in eye color is a minority factor in each of the Moroccan groups studied, the tendency nevertheless appears for what light eyes there are to attain the highest degree of lightness, and for the mixed eyes to take a dominantly light rather than a dominantly dark form.

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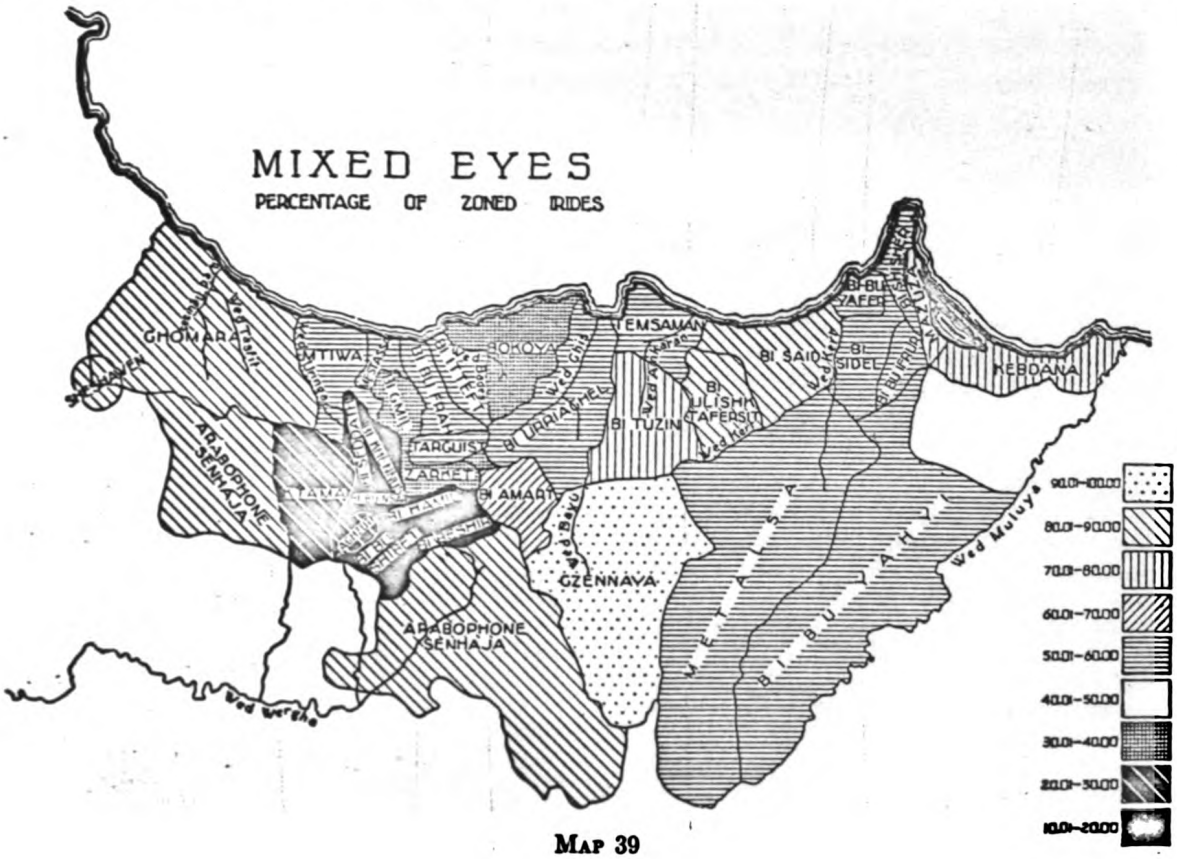
Distribution of Mean Scores

We have seen that although the number of pure brown and black eyes exceeds that of pure light eyes by a wide margin, in fact, in the Rif, by about 23 to 1, yet the mixed eyes are still in the majority, and within the mixed eyes the light elements tend to dominate over the dark. It seems that the light elements appear most characteristically in mixture, whereas the brunet elements maintain their relative purity. In this the brunet elements appear dominant, but in their persistence despite constant mixture, the light elements do



Map 39

not act the part of a normal recessive character. As has been observed in other regions, light eyes tend to persist in the face of brunet mixture much longer than does light hair.

This failure of the light elements in eye color to assume a normal recessive behavior perhaps accounts for their scattered distribution throughout the northern area. Although the Rif comes out lightest of the six groups, with Ghomara next, and the Senhaja third, within the tribes the expected geographical pattern is not found. Beni Amart, it is true, is by far the lightest, but the other tribes characteristically light, Beni Urriaghel, Gzennaya, and to a lesser extent Beni Tuzin, Targuist, and Bokoya, are darker than Kebdana, Mazuza, Galiya, Beni Ulishk, and the Nomads as well. Either influences from the south and east have brought in light elements as well as dark brown ones, or old light eyed elements in these regions have persisted in astonishing degree. In Beni Hamid, Taghzuth, and Ktama,

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we find the cause of the high score of the total Senhaja. Here evidently the result of the Senhajan invasion is apparent. It is noteworthy that in eye color as in skin color, and to a less marked extent in hair color, the Senhaja brought in far darker elements than did those peoples responsible for cultural as well as racial changes in the east; whereas the Ghomara were almost as fair as the Riffians, or else failed greatly to influence in pigment a preceding population.

IRIS

Observations were made upon the type of iris, whether homogenous, rayed, zoned, or spotted. All pure lights and darks were homogenous; the separation into the other three categories depends upon mixture. A rayed eye is one in which the light pigment forms the

TABLE 45. IRIS

	No.	Homogenous	Rayed	Zoned	Spotted	Mixed irides, per cent zoned
Total Rif	529	43.67	17.11	38.85	.38	68.96
		(231)	(90.5)	(205.5)	(2)	
Total Senhaja	197	53.81	25.64	20.00	.51	43.40
		(106)	(50.5)	(39.5)	(1)	
Ghomara	73	42.47	9.59	47.95	..	83.33
		(31)	(7)	(35)		
Sheshawen	28	67.86	3.57	28.57	..	88.89
		(19)	(1)	(8)		
Arabs	93	56.99	23.12	19.39	..	46.25
		(53)	(21.5)	(18.5)		
Shluh	274	70.44	14.41	15.15	..	50.74
		(193)	(39.5)	(41.5)		
Kebdana		50.00	14.28	35.72	..	71.43
Mazuza		46.67	13.33	40.00	..	75.00
Galiya		40.91	21.82	35.45	1.82	61.90
Nomads		37.50	28.57	33.93	..	54.29
Said		48.33	6.67	45.00	..	87.10
Ulishk		36.79	11.32	50.00	1.89	81.54
Temsaman		51.02	20.41	28.57	..	58.33
Tuzin		56.58	10.53	32.89	..	75.76
Gzennaya		55.45	3.64	40.91	..	91.84
Urriaghel		40.63	24.22	35.15	..	59.20
Amart		27.27	22.73	50.00	..	68.75
Targuist		33.33	27.78	38.89	..	58.33
Bokoya		45.83	33.33	20.84	..	38.46
Maritimes		40.91	27.27	31.82	..	53.85
Zarket		40.00	40.00	20.00	..	33.33
Bu Nsar		40.00	50.00	10.00	..	16.67
Hamid		66.67	27.78	5.58	..	16.67
Taghzuth		61.02	27.12	10.17	1.69	27.27
Ktama		69.17	22.73	9.09	..	28.57
Ar. Sen.		44.68	6.38	48.94	..	88.46

background and the dark radiates from the pupil towards, although not always touching, the circumference, like spokes of a wheel. The length and thickness of these rays depend on the relative quantity of light and dark pigment elements. A zoned eye has both light and brown elements in the form of partial zones or bands equicentral to the circumference. Besides these two types of mixed iris, there is another in which one color is dominant and the

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other is present only in minute flecks or spots. This is called a spotted iris. Brown flecks in a light eye are clustered around the pupil in most cases, whereas light spots are more commonly peripheral. In the mixed eye it appears that brown elements are concentrated centrally and light ones distally.

The distribution of the types of mixed iris is shown on Map 39. It will be observed that the rayed eye is concentrated in the purest Senhajan region, and that the highest percentage of zoned irides is found in the Gzennaya, and in all the Rif but Bokoya the latter type forms more than 50 per cent of instances. Sheshawen, the Ghomara, and the Arabophone Senhaja resemble the Riffians in this character. It is clear that we have a Senhajan contribution in the rayed iris, and that the zoned iris is the more characteristic north Moroccan form. The Arabs and Shluh both run low in percentage of zoned irides, but not as low as the nuclear Senhajan tribes. The connection is probably with the south.

TABLE 46. EYE COLOR

PERCENTAGES OF BRUNET EYES

	No.	Brunet		Brunet
Total Rif	529	42.5	Tuzin	51.3
Total Senhaja	197	45.3	Gzennaya	53.6
Ghomara	73	41.2	Urriaghel	43.8
Sheshawen	28	67.9	Amart	18.2
Arabs	93	62.4	Targuist	33.3
Shluh	274	75.5	Bokoya	52.1
			Maritimes	40.9
Kebdana		42.9		
Mazuza		43.3	Zarket	40.0
Galiya		36.8	Bu Nsar	48.0
Nomads		37.2	Hamid	66.7
Said		48.3	Taghzuth	61.0
Ulishk		36.8	Ktama	63.6
Temsaman		51.0	Ar. Sen.	44.7

COMPARATIVE DATA

	Authority	No.	Brunet	
Mzabites	Amat	50	98.0	
Granada	H. S. and A.	..	86.1	
Sardinia	Livi	6,685	86.0	
Andalusia	H. S. and A.	..	85.4	
Catalonia	H. S. and A.	..	84.6	
Galicia	H. S. and A.	..	84.1	
Valenciana	H. S. and A.	..	83.8	
Newquay	Fleure (P)	18	83.2	(Beddoe, 77.7)
Kabyles	R.-Mac I. and W.	50	82.0	
Leon	H. S. and A.	..	80.6	
Calabria	Livi	13,300	80.5	
Spain (total)	H. S. and A.	..	80.0	
Italians, U. S. Army	D. and L.	3,486	79.7	
Canary Islands	H. S. and A.	..	79.5	
Irak Bedawin	Ehrich	33	78.1	
New Castile	H. S. and A.	..	77.8	
Llandyssul	Fleure (P)	55	77.3	(Beddoe, 76.4)
Murcia	H. S. and A.	..	76.6	
Sicily	Livi	32,803	76.3	
Denbighshire Upland	Fleure (P)	51	75.5	(Beddoe, 64.7)
Asturia	H. S. and A.	..	75.3	

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	Authority	No.	Brunet	
Old Castile	H. S. and A.	..	75.2	
Shawia	R.-Mac I. and W.	57	70.2	
Ardudwy	Fleure (P)	113	66.8	(Beddoe, 54.0)
Balearic Islands	H. S. and A.	..	63.2	
Aragon	H. S. and A.	..	62.4	
Basques and Navarre	H. S. and A.	..	59.9	
Piedmont	Livi	33,462	59.9	
Merionethshire	Fleure (P)	138	56.5	(Beddoe, 39.1)
West Montgomery	Fleure (P)	100	55.5	(Beddoe, 44.0)
Abergavenny (town)	Beddoe (P)	50	52.0	
Caermathen Eisteddfod	Fleure (P)	375	46.1	
Harvard, fathers	Bowles[1]	438	45.9	
Penzance	Fleure (P)	125	44.8	
French, U. S. Army	D. and L.	1,429	40.9	
Redruth	Fleure (P)	200	40.8	
Americans, U. S. Army	D. and L.	101,704	39.1	
Totnes and S. Devon	Beddoe (P)	200	38.2	
Germans, U. S. Army	D. and L.	7,059	35.1	
English, U. S. Army	D. and L.	4,194	33.9	
Polish, U. S. Army	D. and L.	2,399	33.1	
Harvard, sons	Bowles	438	29.0	
Scotch, U. S. Army	D. and L.	2,049	28.6	
Irish, U. S. Army	D. and L.	6,144	26.7	
Boston (Eng.) County	Beddoe (P)	80	24.7	
Carlisle farmers	Parsons	100	24.0	
Teesdale	Beddoe (P)	48	20.8	
Whitby Fishers	Beddoe (P)	107	19.7	
Farnborough	Beddoe (P)	25	16.0	
Eyemouth Fishers	Beddoe (P)	30	13.3	
Glendale	Beddoe (P)	48	10.4	
Sweden (total)	L. and L.	..	5.0	
Vastmanlands län	L. and L.	..	4.2	
Södermanlands län	L. and L.	..	4.1	
Värmlands län	L. and L.	..	3.8	
Skaraborgs län	L. and L.	..	3.4	
Norway (total)	B. and S.	11,781	1.9	
South Trondelag	B. and S.	599	1.5	
Opland	B. and S.	739	1.3	
Hedmark	B. and S.	988	1.3	
North Trondelag	B. and S.	478	1.0	
Vestfold	B. and S.	432	.9	
Valle	A. Schreiner	131	..	
Hålandsdal	A. Schreiner	63	..	
Eidfjord	A. Schreiner	39	..	

PERCENTAGES OF PURE LIGHT EYES

Valle	A. Schreiner	131	40.5
Vestfold	B. and S.	432	34.3
Hedmark	B. and S.	988	33.3
Opland	B. and S.	739	27.4
Håldansdal	A. Schreiner	63	26.1
Norway (total)	B. and S.	11,781	26.0
Eidfjord	A. Schreiner	39	23.1
North Trondelag	B. and S.	478	11.7
South Trondelag	B. and S.	599	11.3

[1] Unpublished data on Harvard College statistics, used with permission of Gordon H. Bowles.

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COMPARISONS WITH OTHER GROUPS

Even more than hair color, eye color is subject to the vagaries of the personal equation. Few investigators have realized the necessity of segregating eye color into the three fundamental groups of pure light, mixed, and pure dark; and fewer have attempted biologically significant subdivisions within these three. Of the three, pure dark is probably most reliable in the largest number of cases. Pure lights, so-called, usually contain a varying percentage of mixed eyes.

The accompanying tables show the percentages of pure dark eyes in the Moroccan groups and in those African, Asiatic, and European groups which seemed sufficiently reliable. Only in the cases of certain British groups was I able to check the work of two investigators, Beddoe and Fleure; their similarities and divergences appear in the table. It is apparent that a probable error of about 10 per cent would not be an unreasonable assumption.

Using what material we have, we find that our Riffians are far lighter in eye color than other peoples bordering on the Mediterranean. There are twice as many brunet eyes in proportion in many of the Spanish and South Italian provinces. In many parts of Wales and of Cornwall, the percentage runs higher, as it does in one group of Old Americans. The lightest eyed Riffian tribe, the Beni Amart, is equivalent to the blond fishing-village population of the east coast of England. The Riffian figure appears about intermediate between that of Spain and Italy on the one hand and Scandinavia on the other. The Ghomara, which comes out lighter than the Rif in this computation, must not be overlooked. The darkest of all, the Shluh, nuclear Senhaja, and Sheshawen, are more nearly in line with other North African and Mediterranean groups.

The only pure light eyes, in comparative data, of which I could be sure were those observed by Bryn and Schreiner, and by Mme. Schreiner, in Norway. These are the eyes listed under 15 and 16 on the Martin Augenfarbentafel. I have given the figures for those groups listed under brunet eyes. It will be seen that while the pure brunet element is almost negligible, the mixed group is the dominant class, since the pure lights in no case attain the proportion of 50 per cent. Characteristically, as in the total Norwegian figure, they form 25 per cent. It is interesting from the standpoint of heredity to observe this segregation and compare it with that of the Riffians. It apparently takes very little brunet blood to turn a light eyed population into a mixed eyed one, with the pure light eyes assuming a recessive Mendelian character. Since, however, the inheritance of pure dark eyes is apparently not that of a Mendelian dominant, we may assume that the proportion of brunet eye color factors in the Rif, averaging 42.5 per cent, is approximately right.

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CHAPTER XIX

MORPHOLOGICAL OBSERVATIONS

TECHNIQUE AND PRESENTATION

For each subject measured a considerable number of observations were made. The most important of these are presented in the accompanying tables. In observations in which no definite measure is used differences between observers are usually so great as to make comparison of their results impractical. A good observer, however, should be so consistent in his technique that any two groups which he has observed should be comparable. The standard visualized in the present investigation was a normal European condition, that prevailing among ordinary Europeans possessing an increment of North European blood as well as the usual other elements, conditions which would typify by and large the composite Englishman or American of British ancestry. Such an individual would have a moderate development of head, face, and body hair, fairly but not excessively prominent brow-ridges, and a nose of intermediate dimensions, with tip and wings reasonably but not extremely narrow and compressed. Other features would likewise aim at a mean European ideal.

In those observations of a quantitative nature, absent, ssm, sm, +, ++, and +++ are the symbols employed to designate degree of development. The + is of course the ideal norm, and sm and ++ represent recognizable excess in a negative or positive direction. Ssm and +++ have been used sparingly and only for such extreme cases as seem to merit them. Absent is used in only a few observations, in those in which a trait may be entirely lacking without pathological implication. In one observation a reverse or negative designation was found necessary; forehead slope, in which occasionally forward inclinations are found.

In presenting quantitative observations percentages are given for the dispersion of the categories within each of the six Moroccan groups. For tribal use this method seems too clumsy and too detailed. In attempting to visualize relative tribal values an array of columns usually obscures the conclusions. To avoid this a system has been devised whereby each tribe is given but one figure for each observation. This is called the mean, and is calculated like the mean of a metrical series, with the following values given each category: Absent, 0; ssm, 12.50; sm, 25.00; +, 50.00; ++, 75.00; +++, 87.50. In other words, the values are allotted in a range from 0 to 100, with the hypothetical norm set at 50. Each step outward in a positive or negative direction halves the distance between it and the limit, and if the categories were increased in number the differences would decrease proportionately, and the limits never be reached; except of course in case of the utter absence of a character. This array follows the distribution of a normal curve and the actual qualities the observations should possess if properly taken, while avoiding an exaggeration of the extremes which would be present were an even numerical succession employed. In the cases of the forward-sloping forehead, values of −25.00 were given, of necessity on an arbitrary basis. In the quantitative observations mean values of the six total Moroccan series are presented as

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well as percentile values, so that each tribe may be compared directly with the whole of which it forms a part and with the outlying groups.

In the observations of a qualitative nature, such as hair form, nasal profile, median and bilateral chins, and so forth, it is necessary to rely upon percentages since the other method could not in fairness be used.

Because of the personal equation no comparative data compiled by other investigators have been presented; all comparisons with the outside are general, and typological.

HAIR FORM

In observing the hair form I was hindered by the prevalent habit of shaving the head. In those individuals whose heads had recently been shaved it was impossible to make the observation at all; in others I may have recorded the form as curlier than was really the case. At any rate the tendency, if it existed, was consistent throughout. No examples of frizzly or woolly hair, indicative of Negro blood, were found in the Rif, although two appeared in the Senhaja and a considerable number in the Arab and Shluh series.

TABLE 47. HAIR FORM

By percentages

	No.	Straight	Low waves	Deep waves	Curly	Frizzly	Woolly
Total Rif	502	4.58	25.50	18.33	51.59		
		(23)	(128)	(92)	(259)		
Total Senhaja	194	2.58	22.68	30.41	43.30	1.03	
		(5)	(44)	(59)	(84)	(2)	
Ghomara	73	1.37	30.14	17.81	50.68		
		(1)	(22)	(13)	(37)		
Sheshawen	28	..	14.29	21.43	64.28		
			(4)	(6)	(18)		
Arabs	93	3.23	13.98	19.35	57.02	1.07	5.35
		(3)	(13)	(18)	(53)	(1)	(5)
Shluh	253	2.77	11.46	10.67	63.24	5.93	5.93
		(7)	(29)	(27)	(160)	(15)	(15)
Kebdana		7.15	50.00	14.28	28.57		
Mazuza		3.45	41.38	20.69	34.48		
Galiya		7.84	19.61	23.53	49.02		
Nomads		..	20.69	13.79	65.52		
Said		..	20.00	23.33	56.67		
Ulishk		..	22.64	15.09	62.27		
Temsaman		4.17	16.67	18.75	60.41		
Tusin		5.71	25.71	22.86	45.72		
Gzennaya		3.85	21.15	26.92	48.08		
Urriaghel		8.62	32.76	12.07	46.55		
Amart		4.55	22.73	22.73	49.99		
Bokoya		11.11	44.44	5.56	38.89		
Targuist		5.56	27.78	16.67	49.99		
Maritimes		5.26	36.84	10.53	47.37		
Zarket		..	12.50	16.67	70.83		
Bu Nsar		4.00	32.00	28.00	32.00	4.00	
Hamid		11.11	33.33	16.67	38.89		
Taghzuth		1.72	24.14	44.83	27.59	1.72	
Ktama		..	36.36	40.91	22.73		
Ar. Sen.		2.17	10.87	21.74	65.22		

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Of the Riffians the Nomads have the curliest hair, with none listed as straight among them or in Beni Said or Beni Ulishk. The straightest hair seems to go with the central tribes, especially Bokoya, and with those on the extreme east.

In the Senhaja, Zarket and the Arabophone Senhaja, which in general are nearer the Riffians than the others, run curliest, while the more typically Senhajan tribes are less so. The Ghomara are about the same as the Riffians in this feature, and the Sheshawen people and Arabs run curlier. The Shluh run curliest, with almost twelve per cent definitely negroid. One of the Shluh whose hair is listed as woolly really had peppercorn hair, comparable to that of a Bushman.

HAIR TEXTURE

In texture the hair of the Riffians is much less fine than that of the Arabs and Shluh, but is nevertheless far from coarse. The medium condition is dominant in all four North Moroccan groups, and only among the Arabs and Shluh does the fine category equal it in numbers. The least fine hair is not found in the recessive area but in the east, in Targuist, and in the outer Senhajan tribes, indicating that coarse hair is intrusive and fine hair older, the opposite from what one would expect.

TABLE 48. HAIR TEXTURE

By percentages

	No.	Coarse	Medium	Fine		Coarse	Medium	Fine
Total Rif ...	528	1.51	74.24	24.57	Said	..	90.00	10.00
		(8)	(392)	(128)	Ulishk	..	86.79	13.21
Total Senhaja	196	2.60	75.97	21.43	Temsaman.....	..	68.75	31.25
		(5)	(149)	(42)	Tuzin	...	81.58	18.42
Ghomara	73	..	61.64	38.36	Gzennaya	3.64	65.45	31.91
			(45)	(28)	Urriaghel	1.56	54.69	43.75
Sheshawen ..	28	..	85.71	14.29	Amart	..	72.73	27.27
			(24)	(4)	Bokoya	4.17	75.00	20.83
Arabs	93	6.45	45.16	48.39	Targuist	..	88.89	11.11
		(6)	(42)	(45)	Maritimes	9.09	50.00	40.91
Shluh	268	2.99	48.13	48.88				
		(8)	(129)	(131)	Zarket	..	56.00	44.00
					Bu Nsar	16.00	72.00	12.00
Kebdana		..	85.72	14.28	Hamid	..	94.45	5.55
Mazuza		3.45	79.31	17.24	Taghzuth	1.72	88.94	10.34
Galiya		..	78.18	21.82	Ktama	..	77.27	22.73
Nomads		4.54	78.22	17.24	Ar. Sen.	.	65.96	34.04

HAIR QUANTITY, MUSTACHE

I have omitted listing the head hair quantity since conditions made the observations inaccurate and furthermore lack of age data made a study of baldness useless. In studying the beard and body hair, only those completely adult were seriated. In mustache quantity the Riffians, Ghomara, and Sheshawen run heaviest, and Shluh, Senhaja, and Arabs least so. Within the Rif the heaviest mustaches were found in the east and in Targuist, with the central tribes running moderate. Of the Senhaja none of the groups comes up to the gen-

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eral Riffian mean. In using for the first time[1] this method of comparing means it will be observed that only Sheshawen exceeds 50, the theoretical norm. I believe, in this case, that the Riffians do on the whole run slightly less hairy on the mustache than do Europeans by and large, but not greatly so.

TABLE 49. HAIR QUANTITY, MUSTACHE

By percentages

	No.	abs.	sm.	sm.	+	++
Total Rif	488	.82	3.89	19.46	58.62	17.21
		(4)	(19)	(95)	(286)	(84)
Total Senhaja	184	..	4.35	36.90	49.50	9.25
			(8)	(68)	(91)	(17)
Ghomara	69	1.45	2.90	27.54	52.19	15.92
		(1)	(2)	(19)	(36)	(11)
Sheshawen	28	..	..	14.32	67.85	17.83
				(4)	(19)	(5)
Arabs	82	..	7.32	31.71	42.67	18.30
			(6)	(26)	(35)	(15)
Shluh	222	1.80	6.31	37.81	41.72	12.33
		(4)	(14)	(84)	(93)	(27)

By means

Kebdana	53.84	Zarket	43.90
Masuza	51.72	Bu Nsar	39.79
Galiya	48.82	Hamid	33.82
Nomads	47.22	Taghsuth	41.78
Said	56.90	Ktama	40.46
Ulishk	48.12	Ar. Sen.	46.22
Temsaman	48.22		
Tusin	48.61	Total Rif	47.57
Gzennaya	43.75	Total Senhaja	41.90
Urriaghel	43.29	Ghomara	46.74
Amart	47.16	Sheshawen	50.85
Targuist	51.89	Arabs	43.29
Bokoya	40.26	Shluh	40.32
Maritimes	42.25		

HAIR QUANTITY, CHEEK

The development on the cheek is naturally less than on the mustache. It is found heaviest in the Eastern Rif and in Sheshawen, and thinnest by far among the Arabs and Shluh. In the Senhaja it runs consistently lower than among the Riffians, and in the Ghomara slightly so. In comparing the cheek to the mustache development it is interesting that the Central Riffians while lighter bearded than their eastern neighbors run higher than them on the whole in relative development of the cheek hair. Temsaman and Bokoya are exceptions to the general rule. Among the Senhaja the cheek is proportionately less bearded, and among the Arabs and Shluh the ratio reaches its ebb. In Sheshawen the development is comparable to that in the Central Rif.

[1] Except, of course, for freckling and the lip seam, studied in the preceding chapter.

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TABLE 50. HAIR QUANTITY, CHEEK

By percentages

	No.	abs.	sm.	sm.	+	++
Total Rif	488	10.44 (51)	2.46 (12)	25.82 (126)	43.88 (214)	17.40 (85)
Total Senhaja	184	12.50 (23)	4.35 (8)	43.50 (80)	30.40 (56)	9.25 (17)
Ghomara	69	7.25 (5)	2.90 (2)	40.60 (28)	33.33 (23)	15.92 (11)
Sheshawen	28	..	..	28.57 (8)	53.50 (15)	17.83 (5)
Arabs	82	20.71 (17)	1.24 (1)	32.91 (27)	28.05 (23)	17.09 (14)
Shluh	222	21.60 (48)	5.41 (12)	36.93 (82)	23.44 (52)	12.62 (28)

By means

		Percentage of Mustache Mean			Percentage of Mustache Mean
Kebdana	51.92	96	Zarket	34.78	79
Mazuza	43.52	85	Bu Nsar	36.37	91
Galiya	43.40	89	Hamid	31.59	94
Nomads	44.91	95	Taghzuth	31.40	75
Said	49.14	86	Ktama	35.71	88
Ulishk	44.78	93	Ar. Sen.	34.90	76
Temsaman	38.84	79			
Tuzin	42.35	87	Total Rif	41.76	88
Gzennaya	42.24	97	Total Senhaja	36.16	86
Urriaghel	41.50	96	Ghomara	39.13	84
Amart	42.03	89	Sheshawen	47.32	93
Targuist	44.65	88	Arabs	29.15	67
Bokoya	23.60	59	Shluh	31.10	65
Maritimes	35.10	83			

HAIR QUANTITY, JAW

In absolute development, there is little difference between the six larger groups, Sheshawen running heaviest and the Senhaja thinnest, while in the Rif the eastern tribes and

TABLE 51. HAIR QUANTITY, JAW

By percentages

	No.	abs.	sm.	sm.	+	++
Total Rif	488	5.32 (26)	3.48 (17)	19.86 (97)	53.12 (259)	18.22 (89)
Total Senhaja	184	4.35 (8)	4.35 (8)	38.55 (71)	43.50 (80)	9.25 (17)
Ghomara	69	1.45 (1)	2.90 (2)	31.84 (22)	46.34 (32)	17.47 (12)
Sheshawen	28	..	..	17.83 (5)	64.34 (18)	17.83 (5)
Arabs	82	6.10 (5)	2.44 (2)	20.05 (23)	51.91 (36)	19.50 (16)
Shluh	222	5.86 (13)	4.06 (9)	32.90 (73)	44.10 (98)	13.06 (29)

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By means

		Percentage of Mustache Mean			Percentage of Mustache Mean
Kebdana	53.82	100	Zarket	38.04	87
Mazuza	46.98	91	Bu Nsar	36.37	91
Galiya	47.64	98	Hamid	33.09	98
Nomads	44.90	95	Taghzuth	38.59	92
Said	56.04	99	Ktama	38.10	94
Ulishk	47.58	99	Ar. Sen.	43.60	95
Temsaman	44.15	92			
Tuzin	45.14	93	Total Rif	45.63	96
Gzennaya	41.93	96	Total Senhaja	38.87	93
Urriaghel	43.10	99	Ghomara	44.56	95
Amart	45.23	96	Sheshawen	50.00	98
Targuist	50.00	98	Arabs	43.90	101
Bokoya	33.33	83	Shluh	40.58	99
Maritimes	42.60	101			

Targuist show the heaviest growth, and in Senhaja only the Arabophone Senhaja approach the Riffian standard. In the proportion of jaw to mustache development there is little variation.

HAIR QUANTITY, BODY

In this feature the Riffians are far from hairiest, showing the least development in the central tribes and among the Nomads. Targuist again comes out relatively hairy, and

TABLE 52. HAIR QUANTITY, BODY

By percentages

	No.	abs.	sm.	sm.	+	++	+++
Total Rif	492	22.97	.22	30.69	35.77	9.94	.41
		(113)	(1)	(151)	(176)	(49)	(2)
Total Senhaja	185	12.97	..	32.98	41.08	11.35	1.62
		(24)		(61)	(76)	(21)	(3)
Ghomara	69	10.14	..	28.61	43.78	17.47	
		(7)		(17)	(33)	(12)	
Sheshawen	28	..	..	28.57	64.34	7.09	
				(8)	(18)	(2)	
Arabs	82	48.77	1.24	19.50	19.50	9.75	1.24
		(40)	(1)	(16)	(16)	(8)	(1)
Shluh	222	51.80	..	28.82	13.52	4.06	1.80
		(116)		(64)	(30)	(9)	(4)

By means

Kebdana	44.23	Zarket	23.90
Mazuza	33.62	Bu Nsar	46.40
Galiya	34.43	Hamid	37.50
Nomads	27.58	Taghzuth	44.74
Said	45.00	Ktama	41.06
Ulishk	40.58	Ar. Sen.	35.48
Temsaman	38.28		
Tuzin	31.20	Total Rif	33.40
Gzennaya	28.10	Total Senhaja	38.70
Urriaghel	27.37	Ghomara	43.12
Amart	33.32	Sheshawen	44.64
Targuist	37.50	Arabs	23.17
Bokoya	18.02	Shluh	18.32
Maritimes	30.95		

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most of the eastern tribes fall in the same category. Zarket, Beni Hamid, and the Arabophone Senhaja resemble the Central Riffians in this respect, while the other Senhaja are hairier. The Ghomarans and Sheshawen people run far hairier than the Riffians in general. The Arabs and Shluh on the other hand show little development. While the groups studied are less hairy than Europeans as a whole, the greatest development seems to be attained by the heavier, thicker set groups of the north, and the blonds as well as the Arabs and Shluh appear to be more nearly glabrous.

EYEBROW THICKNESS

In this quality I can see little difference between the various groups, or at least, little which shows a consistent trend in any recognizable direction.

TABLE 53. EYEBROW THICKNESS

By percentages

	No.	—	+	++	+++
Total Rif	530	5.28	75.56	19.16	
		(28)	(400)	(102)	
Total Senhaja	197	5.58	77.11	17.31	
		(11)	(144)	(42)	
Ghomara	73	2.79	88.99	8.22	
		(2)	(65)	(6)	
Sheshawen	28	..	78.57	21.43	
			(22)	(6)	
Arabs	93	6.45	74.03	20.44	1.08
		(6)	(67)	(19)	(1)
Shluh	277	9.39	65.38	25.23	
		(26)	(181)	(70)	

By means

Kebdana	55.35	Zarket	57.00
Mazuza	52.50	Bu Nsar	50.00
Galiya	50.91	Hamid	55.55
Nomads	54.31	Taghzuth	54.67
Said	54.17	Ktama	52.27
Ulishk	50.00	Ar. Sen.	53.72
Temsaman	54.08		
Tuzin	53.29	Total Rif	53.49
Gzennaya	56.82	Total Senhaja	53.93
Urriaghel	53.52	Ghomara	51.37
Amart	57.97	Sheshawen	55.36
Targuist	54.17	Arabs	53.90
Bokoya	51.04	Shluh	53.97
Maritimes	57.96		

EYEBROWS, CONCURRENCY

There is little of this trait present in Morocco. It seems least pronounced among the Shluh and Arabs and most developed in the Senhajan tribes situated on the invasion route of that territory. In the Rif it is least developed among the central tribes excepting Beni Amart, which swings strongly in a contrary direction.

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TABLE 54. EYEBROWS, CONCURRENCY

By percentages

	No.	abs.	sm.	m.	+	++	+++
Total Rif	530	45.64	.57	31.51	17.56	4.72	
		(242)	(3)	(167)	(93)	(25)	
Total Senhaja	197	30.46	..	27.41	34.51	7.11	.51
		(60)		(68)	(54)	(14)	(1)
Ghomara	73	45.31	..	31.40	17.81	5.48	
		(33)		(23)	(13)	(4)	
Sheshawen.....	28	35.68	..	32.17	21.43	10.72	
		(10)		(9)	(6)	(3)	
Arabs	93	47.32	1.08	34.40	13.97	3.23	
		(44)	(1)	(32)	(13)	(3)	
Shluh	277	55.94	..	31.42	11.20	1.44	
		(156)		(86)	(31)	(4)	

By means

Kebdana	25.00	Zarket	25.50
Masuza	22.92	Bu Nsar	31.00
Galiya	20.45	Hamid	27.78
Nomads	20.68	Taghzuth	33.47
Said	20.83	Ktama	26.14
Uliahk.....	17.45	Ar. Sen.	22.87
Temsaman	22.58		
Tusin	19.07	Total Rif	22.00
Gsennaya.....	18.63	Total Senhaja	28.04
Urriaghel	16.02	Ghomara	20.88
Amart.....	28.41	Sheshawen	26.78
Targuist	22.23	Arabs	18.15
Bokoya.....	19.78	Shluh	14.44
Maritimes	21.59		

EYEBROWS, LATERAL EXTENSION

The Riffians, Senhaja, and Sheshawen people possess the greatest lateral extension and the Shluh, Arabs, and Ghomara the least. Within the Rif and Senhaja the only exceptions to the general rule are Beni Amart with very little, and Bokoya, the western Maritime tribes, and Zarket, with an excessive development.

TABLE 55. EYEBROWS, LATERAL EXTENSION

By percentages

	No.	abs.	sm.	m.	+	++	+++
Total Rif	530	10.96	.19	38.68	45.64	4.34	.19
		(58)	(1)	(205)	(242)	(23)	(1)
Total Senhaja	197	7.68	..	42.13	47.15	3.04	
		(15)		(83)	(93)	(6)	
Ghomara	73	15.07	..	45.57	37.99	1.37	
		(11)		(34)	(27)	(1)	
Sheshawen.....	28	7.14	..	46.44	39.28	7.14	
		(2)		(13)	(11)	(2)	
Arabs	93	19.37	..	34.40	43.00	3.23	
		(18)		(32)	(40)	(3)	
Shluh	277	23.47	..	31.40	40.08	5.05	
		(65)		(87)	(111)	(14)	

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By means

Kebdana	37.50	Zarket	41.00
Masuza	35.17	Bu Nsar	36.00
Galiya	37.27	Hamid	37.49
Nomads	36.20	Taghzuth	37.28
Said	30.82	Ktama	34.10
Ulishk	35.84	Ar. Sen.	34.57
Temsaman	36.20		
Tuzin	35.55	Total Rif	35.96
Gzennaya	35.45	Total Senhaja	36.42
Urriaghel	38.66	Ghomara	31.17
Amart	28.41	Sheshawen	36.60
Targuist	33.35	Arabs	32.53
Bokoya	41.13	Shluh	31.69
Maritimes	43.17		

EYEFOLDS

External eyefolds, generally attributed to the North European racial type, are found in the majority of individuals in the Rif and Senhaja, being caused by a low orbit, high, nar-

TABLE 56. EYEFOLDS

By percentages

	No.	Absent	Epicanthic	Median	External	Complete
Total Rif	530	35.47	2.45	1.89	60.00	.19
		(188)	(13)	(10)	(318)	(1)
Total Senhaja	196	22.84	6.16	3.08	67.92	
		(45)	(12)	(6)	(134)	
Ghomara	73	31.51	10.96	..	57.53	
		(23)	(8)		(42)	
Sheshawen	28	39.28	..	3.57	57.15	
		(11)		(1)	(16)	
Arabs	93	57.02	5.35	3.23	34.40	
		(53)	(5)	(3)	(32)	
Shluh	277	60.64	10.83	..	28.53	
		(168)	(30)		(79)	
Kebdana		35.71	..	..	64.29	
Masuza		30.00	3.33	3.33	63.34	
Galiya		34.55	3.64	..	61.81	
Nomads		44.83	..	3.45	51.72	
Said		23.33	..	..	76.67	
Ulishk		37.74	1.89	1.89	58.48	
Temsaman		38.78	..	..	61.22	
Tuzin		26.32	2.63	..	71.05	
Gzennaya		39.99	1.82	3.64	52.73	
Urriaghel		32.81	6.25	3.12	57.82	
Amart		13.64	..	4.54	81.82	
Bokoya		54.19	4.16	4.16	37.49	
Targuist		22.22	5.56	..	72.22	
Maritimes		68.17	4.55	4.55	22.73	
Zarket		12.00	..	8.00	80.00	
Bu Nsar		8.00	16.00	..	76.00	
Hamid		33.33	5.56	..	61.11	
Taghzuth		30.51	8.47	1.70	59.32	
Ktama		4.54	..	..	96.46	
Ar. Sen.		29.79	4.25	6.38	59.58	

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row nasal skeleton, well developed browridges, and compressed malars, all in combination. In the Ghomara and Sheshawen these folds, while still found in more than half the samples, are less common. Among the Arabs and Shluh they are well in the minority. Median and complete folds are in the minority everywhere. Traces of internal folds are found chiefly on the Ghomara and Shluh, while occurring sporadically among the Riffians, Senhaja, and Arabs, and being absent from the Sheshawen series. Only in Beni Bu Nsar do they assume any considerable proportion tribally. Among the Shluh they give an appearance which makes some individuals look Mongoloid, but this semblance is not substantiated by other observations or by measurements. If they do represent a latent Mongoloid strain it is well submerged.

EYES, OBLIQUITY

This feature is well subdued in most of the Rif, coming in clearly over the nomadic invasion route, and it also appears in three of the Senhajan tribes. It is strongest in these two regions and in the Ghomara, and is clearly an intrusive feature. It is no more prevalent in Sheshawen or among the Arabs and Shluh than in most of the Rif.

TABLE 57. EYES, OBLIQUITY

By percentages

	No.	abs.	sem.	sm.	+	++
Total Rif	530	84.15	.19	9.05	6.42	.19
		(446)	(1)	(48)	(34)	(1)
Total Senhaja	197	72.60	..	16.24	9.64	1.52
		(143)		(32)	(19)	(3)
Ghomara	73	67.12	..	15.07	17.81	
		(49)		(11)	(13)	
Sheshawen	28	78.56	..	17.87	3.57	
		(22)		(5)	(1)	
Arabs	93	83.87	..	11.83	4.30	
		(78)		(11)	(4)	
Shluh	277	81.55	..	10.48	6.53	1.44
		(143)		(29)	(18)	(4)

By means

Kebdana	0.00	Zarket	7.00
Masuza	2.50	Bu Nsar	10.00
Galiya	3.18	Hamid	12.50
Nomads	13.80	Taghzuth	9.34
Said	6.75	Ktama	21.58
Ulishk	5.18	Ar. Sen.	7.45
Temsaman	4.08		
Tuzin	3.97	Total Rif	5.64
Gzennaya	9.10	Total Senhaja	10.02
Urriaghel	6.64	Ghomara	12.50
Amart	2.85	Sheshawen	6.25
Targuist	8.32	Arabs	5.20
Bokoya	5.21	Shluh	6.95
Maritimes	2.23		

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FOREHEAD HEIGHT

On the whole the Riffians have the highest foreheads of all groups studied, and exceed the European norm in appearance; measurements have shown them to be higher headed than Scandinavians and Iberians, so this excess is probably a true one. The highest foreheads are located in the areas of greatest blondism. Especially low foreheads, relatively speaking, come in with the Nomads and are found in Ktama and in the Ghomara.

TABLE 58. FOREHEAD HEIGHT

By percentages

	No.	sm.	sm.	+	++	+++
Total Rif	530	.19	12.45	55.09	31.70	.57
		(1)	(66)	(292)	(168)	(3)
Total Senhaja	197	..	15.74	57.34	25.90	1.02
			(31)	(113)	(51)	(2)
Ghomara	73	..	25.21	59.72	15.07	
			(19)	(43)	(11)	
Sheshawen	28	..	14.32	53.51	32.17	
			(4)	(15)	(9)	
Arabs	93	..	22.56	47.32	30.12	
			(21)	(44)	(28)	
Shluh	277	.36	19.18	44.94	34.80	.72
		(1)	(53)	(142)	(119)	(2)

By means

Kebdana	53.57	Zarket	55.50
Mazuza	56.66	Bu Nsar	52.00
Galiya	54.55	Hamid	54.17
Nomads	45.26	Taghzuth	52.33
Said	50.00	Ktama	48.86
Ulishk	53.30	Ar. Sen.	54.79
Temsaman	54.44		
Tuzin	54.61	Total Rif	54.95
Gzennaya	55.46	Total Senhaja	52.98
Urriaghel	57.24	Ghomara	47.26
Amart	62.50	Sheshawen	54.47
Targuist	53.12	Arabs	51.88
Bokoya	62.52	Shluh	52.50
Maritimes	52.27		

FOREHEAD BREADTH

The Riffians have not, however, the broadest foreheads, which are possessed by Sheshawen. Widest foreheads in the Rif go with Beni Amart, Gzennaya, and Beni Said, whereas the narrowest ones skirt the coast from Temsaman to Mtiwa, and extend over into the Ghomara. Still narrower ones are found in Beni Hamid and Ktama.

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TABLE 59. FOREHEAD BREADTH

By percentages

	No.	sm.	+	++	+++
Total Rif	530	7.18	62.07	30.75	
		(38)	(329)	(163)	
Total Senhaja	197	13.70	61.42	24.37	.51
		(27)	(121)	(48)	(1)
Ghomara	73	5.48	59.72	34.80	
		(4)	(43)	(26)	
Sheshawen	28	3.57	60.75	35.68	
		(1)	(17)	(10)	
Arabs	93	12.90	56.99	29.03	1.08
		(12)	(53)	(27)	(1)
Shluh	277	9.03	57.77	32.50	.72
		(25)	(160)	(90)	(2)

By means

Kebdana	55.36	Zarket	55.50
Mazuza	54.17	Bu Nsar	55.00
Galiya	54.82	Hamid	48.61
Nomads	57.42	Taghzuth	54.24
Said	61.67	Ktama	45.45
Ulishk	56.60	Ar. Sen.	54.26
Temsaman	53.57		
Tuzin	54.61	Total Rif	55.90
Gzennaya	60.00	Total Senhaja	52.86
Urriaghel	52.34	Ghomara	53.77
Amart	60.23	Sheshawen	58.05
Targuist	55.50	Arabs	54.43
Bokoya	53.12	Shluh	56.23
Maritimes	51.14		

FOREHEAD SLOPE

Forehead slope is on the whole less pronounced than in most of Europe. Sheshawen and the characteristic Senhajan tribes present the least of all, the most retreating examples being found in the Eastern Rif, the Central and Western Rif, and among the Arabs, Ghomara, and Shluh. Gzennaya, Beni Tuzin, and Temsaman separate the two areas of comparative slope in the Rif, while the Nomads show really the most extreme development.

TABLE 60. FOREHEAD SLOPE

By percentage

	No.	Forward	abs.	sm.	+	++	+++
Total Rif	529	.19	.76	44.39	40.45	14.18	
		(1)	(4)	(235)	(214)	(75)	
Total Senhaja	197	2.54	4.57	50.70	34.00	7.68	.51
		(5)	(9)	(100)	(67)	(15)	(1)
Ghomara	73	..	..	47.91	32.90	18.54	1.37
				(35)	(24)	(13)	(1)
Sheshawen	28	..	7.14	57.12	32.17	3.57	
			(2)	(16)	(9)	(1)	
Arabs	93	..	..	44.09	41.93	8.60	5.38
				(41)	(39)	(8)	(5)
Shluh	277	.72	2.17	38.60	44.42	14.09	
		(2)	(6)	(107)	(123)	(39)	

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By Means

Kebdana	42.85	Zarket	39.00
Mazuza	44.17	Bu Nsar	38.00
Galiya	41.36	Hamid	36.10
Nomads	47.41	Taghzuth	33.05
Said	45.33	Ktama	32.96
Ulishk	43.49	Ar. Sen.	34.85
Temsaman	35.93		
Tuzin	39.48	Total Rif	41.92
Gzennaya	38.65	Total Senhaja	36.23
Urriaghel	41.80	Ghomara	42.98
Amart	43.18	Sheshawen	33.04
Targuist	45.83	Arabs	43.13
Bokoya	41.66	Shluh	42.22
Maritimes	46.59		

BROWRIDGES

Browridges are slightly less pronounced than in Northern and Central Europe although more so than in the south. Beni Said, Targuist, and Taghzuth have the heaviest ones, with other tribes intermediate. The Senhaja, Ghomara, and Arabs run to a rugged growth while the Shluh present the smoothest contours.

TABLE 61. BROWRIDGES

By percentages

	No.	abs.	sem.	sm.	+	++	+++
Total Rif	530	1.13	1.89	31.70	53.20	11.51	.57
		(6)	(10)	(168)	(282)	(61)	(3)
Total Senhaja	197	.51	1.52	27.92	49.24	20.30	.51
		(1)	(3)	(55)	(97)	(40)	(1)
Ghomara	73	..	..	31.40	52.16	15.07	1.37
				(23)	(38)	(11)	(1)
Sheshawen	28	..	3.57	39.29	42.82	14.32	
			(1)	(11)	(12)	(4)	
Arabs	93	2.15	1.08	26.94	47.32	16.13	5.38
		(2)	(1)	(26)	(44)	(15)	(5)
Shluh	277	3.25	2.89	41.51	40.43	10.48	1.44
		(9)	(8)	(116)	(112)	(29)	(4)

By Means

Kebdana	42.87	Zarket	43.00
Mazuza	44.17	Bu Nsar	48.00
Galiya	39.98	Hamid	47.23
Nomads	46.55	Taghzuth	51.48
Said	51.67	Ktama	45.45
Ulishk	46.22	Ar. Sen.	35.91
Temsaman	40.42		
Tuzin	43.36	Total Rif	43.90
Gzennaya	49.32	Total Senhaja	47.46
Urriaghel	37.95	Ghomara	46.51
Amart	44.89	Sheshawen	42.40
Targuist	52.08	Arabs	48.12
Bokoya	37.50	Shluh	33.75
Maritimes	43.17		

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NASION DEPRESSION

In coming to the nose we approach the portion of the body which is perhaps most sensitive of all to racial variation, and must deal with it carefully. The nasion depression depends for its character upon two factors, the height of the nasal root and the development of the browridges at glabella. Of those groups which have the heaviest browridges, Ghomara, Beni Ulishk, Temsaman, Beni Tuzin, Gzennaya, Targuist, and Taghzuth have correspondingly deep nasion depressions. Temsaman, Beni Hamid, and Ktama have deeper ones than should be expected considering their browridges; and the least depressions are found in Kebdana and among the Nomads, where the nose runs from the forehead with little break. The Moroccans as a whole have relatively little nasion depression compared to the bulk of Europeans, but the Nomadic type seems to have the least of all.

TABLE 62. NASION DEPRESSION

By percentages

	No.	abs.	scn.	sm.	+	++	+++
Total Rif	528	1.52 (8)	3.60 (19)	40.15 (212)	45.07 (238)	9.47 (50)	.19 (1)
Total Senhaja	196	2.04 (4)	4.08 (8)	43.52 (85)	38.12 (75)	11.73 (23)	.51 (1)
Ghomara	73	..	..	29.32 (22)	59.72 (43)	9.59 (7)	1.37 (1)
Sheshawen	28	..	10.71 (3)	39.29 (11)	39.29 (11)	10.71 (3)	
Arabs	93	1.08 (1)	3.21 (3)	44.09 (41)	33.32 (31)	18.30 (17)	
Shluh	275	3.61 (10)	1.81 (5)	81.40 (112)	81.04 (111)	11.55 (32)	1.81 (5)

By means

Kebdana	33.05	Zarket	36.00
Masuza	39.21	Bu Nsar	39.00
Galiya	35.68	Hamid	41.91
Nomads	34.48	Taghzuth	40.05
Said	40.83	Ktama	42.60
Ulishk	45.28	Ar. Sen.	39.90
Temsaman	42.60		
Tuzin	46.71	Total Rif	40.28
Gzennaya	42.16	Total Senhaja	39.75
Urriaghel	39.84	Ghomara	45.38
Amart	38.08	Sheshawen	38.82
Targuist	41.65	Arabs	41.80
Bokoya	39.13	Shluh	40.90
Maritimes	37.37		

NASAL ROOT, HEIGHT

The root of the nose is fully as high in Moroccans as among Europeans, if not somewhat higher. Its greatest height is found in the Central Rif and in the east, the highest of all among the Nomads. It is lowest in Beni Ulishk, Beni Tuzin, Targuist, Bokoya, Ktama, and the Ghomara.

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TABLE 63. NASAL ROOT, HEIGHT

By percentages

	No.	sem.	sm.	+	++	+++
Total Rif	528	.38	10.41	69.72	19.30	.19
		(2)	(55)	(368)	(108)	(1)
Total Senhaja	196	.51	11.73	64.29	21.94	1.53
		(1)	(23)	(126)	(43)	(3)
Ghomara	73	..	10.96	79.45	9.59	
			(8)	(58)	(7)	
Sheshawen	28	..	10.71	82.44	6.85	
			(3)	(20)	(5)	
Arabs	93	..	13.98	64.50	20.44	1.08
			(13)	(60)	(19)	(1)
Shluh	275	.73	20.73	53.54	25.00	
		(2)	(57)	(150)	(66)	

By means

Kebdana	53.57	Zarket	53.00
Masuza	55.17	Bu Nsar	54.00
Galiya	55.69	Hamid	52.94
Nomads	56.90	Taghzuth	54.66
Said	56.67	Ktama	47.73
Ulishk	48.21	Ar. Sen.	52.13
Temsaman	52.55		
Tusin	46.71	Total Rif	52.15
Gzennaya	53.18	Total Senhaja	52.17
Urriaghel	52.35	Ghomara	49.66
Amart	55.12	Sheshawen	51.79
Targuist	45.83	Arabs	52.02
Bokoya	47.83	Shluh	50.56
Maritimes	50.00		

NASAL ROOT, BREADTH

Here again the Nomads and the Central Riffians come out at the extreme in a hyper-European direction. The Riffians are the narrowest in this respect, with Ghomara and Sheshawen accompanying them. Beni Ulishk, Taghzuth, and the Arabophone Senhaja appear just as broad as are the Arabs, whereas the Shluh are broadest of all.

TABLE 64. NASAL ROOT, BREADTH

By percentages

	No.	sem.	sm.	+	++
Total Rif	528	.38	61.60	35.41	2.61
		(2)	(326)	(187)	(13)
Total Senhaja	196	.51	58.18	35.19	6.12
		(1)	(114)	(69)	(12)
Ghomara	73	..	62.46	36.17	1.37
			(45)	(27)	(1)
Sheshawen	28	..	60.71	39.29	
			(17)	(11)	
Arabs	93	..	51.61	40.86	7.53
			(48)	(38)	(7)
Shluh	275	..	36.68	53.49	9.83
			(101)	(147)	(27)

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By means

Kebdana	33.94	Zarket	36.47
Masuza	36.20	Bu Nsar	34.00
Galiya	36.60	Hamid	33.83
Nomads	32.76	Taghzuth	38.55
Said	34.17	Ktama	32.96
Ulishk	41.97	Ar. Sen.	38.82
Temsaman	34.19		
Tusin	34.22	Total Rif	33.04
Gzennaya	34.77	Total Senhaja	36.78
Urriaghel	32.43	Ghomara	34.93
Amart	28.41	Sheshawen	34.83
Targuist	34.73	Arabs	39.00
Bokoya	33.69	Shluh	43.17
Maritimes	30.68		

NASAL BRIDGE, HEIGHT

In all Moroccan groups the bridge of the nose is high. This height is apparently a dominant factor in the region since it runs through groups in which other nasal features differ. It reaches its greatest height in the very east of the Rif, in Beni Amart, and in Beni Hamid.

TABLE 65. NASAL BRIDGE, HEIGHT

By percentages

	No.	mm.	m.	+	++	+++
Total Rif	528	.19	6.63	66.86	26.13	.19
		(1)	(35)	(353)	(138)	(1)
Total Senhaja	196	.51	8.17	61.26	27.00	3.06
		(1)	(16)	(120)	(53)	(6)
Ghomara	73	..	10.96	58.35	30.69	
			(8)	(42)	(23)	
Sheshawen	28	..	7.14	64.27	28.59	
			(2)	(18)	(8)	
Arabs	93	1.08	10.75	61.23	25.86	1.08
		(1)	(10)	(56)	(25)	(1)
Shluh	275	..	11.90	60.00	27.75	.35
			(33)	(166)	(75)	(1)

By means

Kebdana	62.50	Zarket	56.00
Masuza	58.63	Bu Nsar	54.00
Galiya	56.36	Hamid	58.09
Nomads	58.63	Taghzuth	55.94
Said	57.50	Ktama	54.55
Ulishk	54.96	Ar. Sen.	55.33
Temsaman	55.62		
Tusin	49.33	Total Rif	54.97
Gzennaya	56.82	Total Senhaja	55.68
Urriaghel	52.35	Ghomara	55.14
Amart	57.96	Sheshawen	55.36
Targuist	47.22	Arabs	54.05
Bokoya	53.26	Shluh	53.96
Maritimes	55.12		

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NASAL BRIDGE, BREADTH

Although the nasal bridge varies little in height, in breadth it shows interesting differences, with the four North Moroccan groups narrowest and the Arabs and Shluh much broader. Internally, Beni Urriaghel and Beni Amart are the narrowest, representing the purest leptorrhine type; Beni Ulishk, Temsaman, Targuist, Bokoya, Beni Bu Nsar, and Taghzuth all show evidence of a broader nosed element. The Nomads, although slightly less narrow than the two central tribes, are yet much narrower than the Riffian mean.

TABLE 66. NASAL BRIDGE, BREADTH

By percentages

	No.	mm.	m.	+	++
Total Rif	528	.19	45.07	50.77	3.97
		(1)	(238)	(268)	(21)
Total Senhaja	196	.51	48.17	42.64	8.68
		(1)	(94)	(84)	(17)
Ghomara	73	..	50.58	45.31	4.11
			(37)	(33)	(3)
Sheshawen	28	..	46.44	49.99	3.57
			(13)	(14)	(1)
Arabs	93	..	34.40	53.77	11.83
			(32)	(50)	(11)
Shluh	275	..	17.84	66.52	15.64
			(49)	(183)	(43)

By means

Kebdana	37.50	Zarket	39.50
Mazuza	40.51	Bu Nsar	43.00
Galiya	38.64	Hamid	39.70
Nomads	37.06	Taghzuth	40.08
Said	38.33	Ktama	37.48
Ulishk	43.39	Ar. Sen.	39.37
Temsaman	42.34		
Tuzin	36.84	Total Rif	39.66
Gzennaya	40.67	Total Senhaja	39.99
Urriaghel	36.30	Ghomara	38.35
Amart	35.22	Sheshawen	39.28
Targuist	44.44	Arabs	44.35
Bokoya	41.30	Shluh	49.45
Maritimes	37.50		

NASAL PROFILE

This observation is the profile of the nose from nasion to the tip, and not from nasion to the end of the nasal skeleton as it is taken on the skull and as some observers take it on the living. All of the Moroccan groups run to straight and convex noses, with a small minority throughout of concave. The Riffians on the whole are the least convex of the lot, although differences are not great. Within the Rif the Nomads and their neighbors have the highest percentages of convex, and high values are also found in the Senhaja and Ghomara. If we take Beni Amart to represent the purest blond type in the area, then the profile which goes with it is apparently straight.

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TABLE 67. NASAL PROFILE

By percentages

	No.	Concave	Straight	Convex	Concavo-convex
Total Rif	528	14.02	45.65	35.61	4.72
		(74)	(241)	(188)	(25)
Total Senhaja	196	13.27	40.81	41.34	4.59
		(26)	(80)	(80)	(9)
Ghomara	73	13.70	36.99	47.95	1.37
		(10)	(27)	(35)	(1)
Sbeshawen	28	10.71	46.43	39.29	3.57
		(3)	(13)	(11)	(1)
Arabs	93	15.06	39.78	44.09	1.07
		(14)	(37)	(41)	(1)
Shluh	275	10.91	46.55	41.55	1.09
		(30)	(128)	(114)	(3)
Kebdana		21.43	28.57	50.00	
Maruza		6.89	48.28	44.83	
Galiya		21.82	47.27	30.91	
Nomads		10.34	44.83	44.83	
Said		..	60.00	36.67	3.33
Ulishk		13.21	39.62	39.62	7.55
Temsaman		14.28	40.82	34.69	10.21
Tuzin		18.42	42.11	36.84	2.63
Gzennaya		14.55	34.54	43.64	7.27
Urriaghel		14.06	46.88	34.37	4.68
Amart		18.18	54.54	22.73	4.55
Targuist		22.22	33.33	33.33	11.12
Bokoya		13.04	65.22	13.04	8.70
Maritimes		..	72.73	27.27	
Zarket		16.00	36.00	48.00	
Bu Nsar		16.00	44.00	32.00	8.00
Hamid		5.88	41.18	47.06	5.88
Taghruth		15.25	38.98	44.07	1.70
Ktama		4.55	45.45	40.91	9.09
Ar. Sen.		14.89	42.86	36.17	6.38

NASAL TIP, THICKNESS

This observation is the most sensitive to variation of all nasal criteria. It is clearly indicated that the Riffians are the narrowest in nasal tip thickness of all the Moroccan groups,

TABLE 68. NASAL TIP, THICKNESS

By percentages

	No.	mm.	m.	+	++	+++
Total Rif	528	7.58	41.10	40.72	10.60	
		(4)	(217)	(251)	(56)	
Total Senhaja	196	.51	34.68	43.38	20.92	.51
		(1)	(68)	(85)	(41)	(1)
Ghomara	73	..	34.80	49.21	15.99	
			(26)	(36)	(11)	
Sbeshawen	28	..	41.22	51.64	7.14	
			(10)	(16)	(2)	
Arabs	93	..	22.56	63.46	11.83	2.15
			(21)	(59)	(11)	(2)
Shluh	275	..	17.14	59.65	22.13	1.08
			(47)	(165)	(60)	(3)

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By means

Kebdana	42.84	Zarket	35.50
Mazuza	41.37	Bu Nsar	47.00
Galiya	42.72	Hamid	50.00
Nomads	43.96	Taghzuth	49.36
Said	40.00	Ktama	52.27
Ulishk	43.34	Ar. Sen.	44.14
Temsaman	38.55		
Tuzin	38.81	Total Rif	42.09
Gzennaya	45.69	Total Senhaja	46.55
Urriaghel	40.05	Ghomara	44.86
Amart	37.50	Sheshawen	42.85
Targuist	47.19	Arabs	48.12
Bokoya	41.30	Shluh	51.59
Maritimes	43.18		

and within the Rif and Senhaja Beni Amart and Zarket are the narrowest, Zarket being even lower than Beni Amart. Temsaman and Beni Tuzin likewise yield low figures. This is curious in the case of Temsaman, which runs relatively broad in the nasal bridge. Of the Riffians, Targuist, the Nomads, the western Maritime tribes, Gzennaya, and Beni Ulishk run broadest. Higher means than any in the Rif, however, are found in Ktama, Beni Hamid, and Taghzuth. The Shluh are the broadest of the six major groups, with the Arabs little behind them.

NASAL TIP, ELEVATION AND DEPRESSION

The accompanying percentages show that the Moroccan nose, despite its aquilinity, is not a mixed or Armenoid nose, since in three quarters of instances, in most groups, its tip is elevated. Depressed tips are found in greatest numbers, although nowhere in the majority, among the Nomads, Beni Urriaghel, Ktama, and Ghomara.

TABLE 69. NASAL TIP, ELEVATION AND DEPRESSION

By percentages only

	No.	Elevation	Depression		Elevation	Depression
Total Rif	522	76.04	23.96	Said	86.67	13.33
		(397)	(125)	Ulishk	84.91	15.09
Total Senhaja	196	68.88	31.12	Temsaman	75.55	24.49
		(135)	(61)	Tuzin	71.05	28.95
Ghomara	72	58.32	41.68	Gzennaya	76.36	23.64
		(42)	(30)	Urriaghel	63.49	36.51
Sheshawen	28	78.56	21.44	Amart	77.27	22.73
		(22)	(6)	Targuist	88.89	11.11
Arabs	92	78.26	21.74	Bokoya	69.57	30.43
		(72)	(20)	Maritimes	77.27	22.73
Shluh	275	71.27	28.73			
		(196)	(79)	Zarket	80.00	20.00
				Bu Nsar	68.00	32.00
Kebdana		78.57	21.43	Hamid	76.47	23.53
Mazuza		72.43	27.57	Taghzuth	66.10	33.90
Galiya		85.45	14.55	Ktama	50.00	50.00
Nomads		62.07	37.93	Ar. Sen.	74.47	25.53

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NASAL WINGS

In all of the groups medium or normal European nasal wing development is the usual thing. The percentages of compressed wings are nicely graded down from the Riffians to the Shluh, who have a greater proportion of flaring than of compressed. No examples of flaring wings were found in the two easternmost Riffian tribes, in the Central Rif, or in Zarket. The greatest proportions of flaring wings occur in Beni Bu Nsar, Taghzuth, and Ktama.

Summing up the nasal observations, we find that the narrowest noses go with the Central Riffian type, judging by distribution, and the broadest go with the Shluh and with Taghzuth, Ktama, and Beni Bu Nsar. Broad nosed elements in the Rif are concentrated in Beni Ulishk and Targuist. In nasal height there is little difference throughout; in wings the Central Riffians are most compressed, and in depression of the tip the Nomads, certain Senhajan tribes, and the Ghomara lead. The Riffian nose is as a rule a high, narrow, straight or aquiline type, thin and elevated at the tip. It is the best indication, of all morphological features, of the fundamentally European character of this people.

TABLE 70. NASAL WINGS

By percentages only

	No.	Compressed	Medium	Flaring
Total Rif	528	31.63	64.20	4.17
		(167)	(339)	(22)
Total Senhaja	196	26.02	58.16	13.84
		(51)	(114)	(31)
Ghomara	73	21.91	67.23	11.96
		(16)	(49)	(8)
Sheshawen	28	10.71	89.29	
		(3)	(25)	
Arabs	92	17.39	69.57	13.04
		(16)	(64)	(12)
Shluh	275	10.91	73.09	16.00
		(30)	(201)	(44)
Kebdana		42.86	57.14	
Masuza		34.48	65.52	
Galiya		36.36	60.00	3.64
Nomads		27.59	68.96	3.45
Said		33.33	56.67	10.00
Ulishk		16.98	77.36	5.66
Temsaman		44.89	42.86	12.25
Tuzin		26.32	73.68	
Gzennaya		20.00	78.18	1.82
Urriaghel		37.50	62.50	
Amart		40.91	59.09	
Targuist		27.78	66.66	5.56
Bokoya		39.13	56.52	4.35
Maritimes		31.82	59.09	9.09
Zarket		36.00	64.00	
Bu Nsar		12.00	60.00	28.00
Hamid		47.06	47.06	5.88
Taghzuth		27.12	47.46	25.42
Ktama		18.18	59.09	22.73
Ar. Sen.		23.41	72.34	4.25

LIPS, INTEGUMENTAL THICKNESS

The thickness of the integument of the lip is not great among any Moroccan groups. Among the Riffians it varies little, being thickest in Beni Ulishk, Gzennaya, Targuist, and Bokoya, and thinnest among the Nomads. The Central Riffian tribes do not come out any thinner in this respect than do the others. Among the Senhaja thicker lips are found, especially in Beni Bu Nsar, Ktama, and Taghzuth. They likewise run thicker among Arabs and Shluh, while the Ghomara and Sheshawen samples accord with the Riffians.

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TABLE 71. LIPS, INTEGUMENTAL THICKNESS

By percentages

	No.	asm.	sm.	+	++	+++
Total Rif	530	.36	14.72	82.28	2.64	
		(2)	(78)	(436)	(14)	
Total Senhaja	197	..	11.68	79.19	9.13	
			(23)	(156)	(18)	
Ghomara	73	..	9.59	89.04	1.37	
			(7)	(65)	(1)	
Sheshawen	28	..	14.29	82.14	3.57	
			(4)	(23)	(1)	
Arabs	93	..	14.00	66.65	17.20	2.15
			(13)	(62)	(16)	(2)
Shluh	277	..	16.62	68.29	15.17	
			(46)	(189)	(42)	

By means

Kebdana	50.00	Zarket	46.00
Mazuza	46.67	Bu Nsar	54.00
Galiya	46.36	Hamid	43.05
Nomads	44.82	Taghzuth	50.42
Said	45.83	Ktama	53.41
Ulishk	47.87	Ar. Sen.	48.40
Temsaman	48.47		
Tuzin	45.39	Total Rif	46.37
Gzennaya	47.27	Total Senhaja	49.37
Urriaghel	45.70	Ghomara	47.95
Amart	46.59	Sheshawen	47.32
Targuist	47.22	Arabs	51.61
Bokoya	47.20	Shluh	49.64
Maritimes	43.17		

LIPS, MEMBRANOUS THICKNESS

This character shows more variation than the preceding one. Thickest membranous lips are seen on the eastern and western Riffian frontiers; and the thinnest ones in the east and middle, with Mazuza, Beni Ulishk, and Beni Tuzin running thinnest of all. Zarket as usual goes with the Riffians, while the other Senhajan tribes are much thicker, with Beni

TABLE 72. LIPS, MEMBRANOUS THICKNESS

By percentages

	No.	abs.	asm.	sm.	+	++	+++
Total Rif	530	.94	2.07	53.20	39.64	4.15	
		(5)	(11)	(282)	(210)	(22)	
Total Senhaja	197	.51	..	36.05	50.24	13.20	
		(1)		(71)	(99)	(26)	
Ghomara	73	2.74	1.37	32.89	48.55	16.45	
		(2)	(1)	(24)	(34)	(12)	
Sheshawen	28	..	7.14	28.59	67.70	3.57	
			(2)	(8)	(17)	(1)	
Arabs	93	..	3.31	16.13	67.65	11.83	1.08
			(4)	(15)	(62)	(11)	(1)
Shluh	277	3.25	..	29.98	49.79	16.62	.36
		(9)		(83)	(138)	(46)	(1)

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By means

Kebdana	42.86	Zarket	34.00
Masuza	33.34	Bu Nsar	47.00
Galiya	35.90	Hamid	43.06
Nomads	36.20	Taghzuth	47.88
Said	35.42	Ktama	43.18
Ulishk	33.02	Ar. Sen.	43.61
Temsaman	35.70		
Tuzin	33.22	Total Rif	36.48
Gzennaya	36.14	Total Senhaja	44.03
Urriaghel	39.28	Ghomara	44.18
Amart	35.22	Sheshawen	41.07
Targuist	34.73	Arabs	47.71
Bokoya	41.67	Shluh	45.12
Maritimes	44.32		

Bu Nsar and Taghzuth in the lead. All of the remaining groups have relatively thick membranous lips compared to the Riffians; but not thick in comparison with the world at large, and probably no thicker than those of Europeans on the average.

LIPS, EVERSION

The tribes of Bokoya, Beni Urriaghel, and Beni Amart reach the lowest points in degree of lip eversion. The percentile table shows that almost a fourth of Riffians have lips which meet straight together with no eversion at all. The same is true of the Shluh. Except for

TABLE 73. LIPS, EVERSION

By percentages

	No.	abs.	sm.	+	++	+++
Total Rif	530	23.00	45.30	28.49	3.21	
		(122)	(240)	(151)	(17)	
Total Senhaja	197	13.71	33.50	39.59	13.20	
		(27)	(66)	(78)	(26)	
Ghomara	73	12.33	37.41	42.47	8.09	
		(9)	(27)	(31)	(6)	
Sheshawen	28	7.14	28.59	64.27		
		(2)	(8)	(18)		
Arabs	93	13.96	37.76	39.68	7.52	1.08
		(13)	(35)	(37)	(7)	(1)
Shluh	277	26.68	34.66	31.08	7.22	.36
		(74)	(96)	(86)	(20)	(1)

By means

Kebdana	39.82	Zarket	26.00
Masuza	25.88	Bu Nsar	36.00
Galiya	27.71	Hamid	33.33
Nomads	33.63	Taghzuth	43.65
Said	29.17	Ktama	43.18
Ulishk	29.72	Ar. Sen.	37.23
Temsaman	26.04		
Tuzin	26.32	Total Rif	27.97
Gzennaya	26.36	Total Senhaja	38.07
Urriaghel	22.66	Ghomara	38.36
Amart	22.33	Sheshawen	39.29
Targuist	52.78	Arabs	35.61
Bokoya	17.71	Shluh	29.90
Maritimes	31.82		

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the abnormal figure of Targuist, the Riffian tribes are consistent in showing the least eversion of any groups. They are followed, curiously enough, by the Shluh, whose lips, although relatively thick, are not greatly everted. Sheshawen shows the greatest mean eversion, and comes, I believe, closest to Europeans in general. Ghomara and the Senhaja are close to Sheshawen in this.

CHIN PROMINENCE

The most prominent chins are found in Sheshawen, although among Riffian tribes Mazuza, Beni Ulishk, Beni Tuzin, Beni Amart, and the Maritime tribes show a good development. The weakest chins in the Rif are possessed by the Nomads. Among the Senhaja, Zarket has the best chins, and Beni Hamid and Ktama the most receding. On the whole the Senhaja are weaker chinned than the Riffians, the Shluh and Ghomara likewise, while the Arabs approximate the Riffians.

TABLE 74. CHIN PROMINENCE

By percentages

	No.	mm.	m.	+	++
Total Rif	530	.57	37.35	56.80	5.28
		(3)	(198)	(301)	(28)
Total Senhaja	195	1.03	46.67	50.25	2.05
		(2)	(90)	(99)	(4)
Ghomara	73	..	41.65	56.98	1.37
			(31)	(41)	(1)
Sheshawen	28	..	37.65	51.64	10.71
			(9)	(16)	(3)
Arabs	93	2.15	62.38	35.47	
		(2)	(58)	(33)	
Shluh	276	2.54	43.15	52.50	1.81
		(7)	(119)	(145)	(5)

By means

Kebdana	39.29	Zarket	41.00
Mazuza	50.00	Bu Nsar	38.54
Galiya	40.00	Hamid	31.66
Nomads	37.07	Taghzuth	38.13
Said	40.00	Ktama	34.10
Ulishk	44.34	Ar. Sen.	37.23
Temsaman	39.79		
Tuzin	43.42	Total Rif	41.72
Gzennaya	41.36	Total Senhaja	38.20
Urriaghel	41.80	Ghomara	39.72
Amart	43.77	Sheshawen	47.73
Targuist	41.66	Arabs	41.57
Bokoya	39.58	Shluh	38.73
Maritimes	43.17		

CHINS, MEDIAN AND BILATERAL

In general more chins are bilateral than median in form. The proportions would approximate them to the European condition. Internal variations seem difficult to interpret. Beni Amart which is the blondest group of all has the most bilateral chins, but whether or not this is of significance will be discussed later. Sheshawen has the most bilateral, and the Arabs the fewest, indicating if anything strongest and weakest European relationships.

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TABLE 75. CHINS, MEDIAN AND BILATERAL

By percentages only

	No.	Median	Bilateral
Total Rif	527	42.50	57.50
		(224)	(303)
Total Senhaja	195	46.67	53.33
		(91)	(104)
Ghomara	73	49.26	50.74
		(36)	(37)
Sheshawen	28	39.23	60.77
		(11)	(17)
Arabs	93	47.31	52.69
		(44)	(49)
Shluh	276	42.50	57.50
		(116)	(157)
Kebdana		42.86	57.14
Mazuza		53.33	46.67
Galiya		31.52	68.48
Nomads		37.93	62.07
Said		26.67	73.33
Ulishk		32.09	67.91
Temsaman		50.00	50.00
Tuzin		47.37	52.63
Gzennaya		45.45	54.55
Urriaghel		59.38	40.62
Amart		13.64	86.36
Targuist		33.33	66.67
Bokoya		62.50	37.50
Maritimes		42.86	57.14
Zarket		60.00	40.00
Bu Nsar		29.17	70.83
Hamid		66.67	33.33
Taghzuth		37.93	62.07
Ktama		68.20	31.80
Ar. Sen.		42.55	57.45

MALARS

In prominence of the cheek-bones the Riffians as a whole approximate a normal European mean. Beni Urriaghel and Beni Amart, Galiya and Kebdana, and Zarket, Beni Bu

TABLE 76. MALARS

By percentages

	No.	sm.	sm.	+	++	+++
Total Rif	530	.19	22.09	50.88	26.65	.19
		(1)	(117)	(275)	(136)	(1)
Total Senhaja	197	..	29.92	40.74	28.83	.51
			(59)	(190)	(57)	(1)
Ghomara	73	..	20.57	45.31	34.32	
			(15)	(33)	(25)	
Sheshawen	28	..	21.39	46.44	32.17	
			(6)	(13)	(9)	
Arabs	93	..	17.20	44.09	38.71	
			(16)	(41)	(36)	
Shluh	276	.36	21.00	38.03	38.89	.72
		(1)	(58)	(105)	(110)	(2)

By means

Kebdana	44.65	Zarket	46.00
Mazuza	50.83	Bu Nsar	49.50
Galiya	48.64	Hamid	48.61
Nomads	50.86	Taghzuth	53.39
Said	55.00	Ktama	37.48
Ulishk	52.83	Ar. Sen.	54.26
Temsaman	46.90		
Tuzin	50.66	Total Rif	50.90
Gzennaya	54.59	Total Senhaja	49.94
Urriaghel	48.63	Ghomara	53.43
Amart	45.51	Sheshawen	52.68
Targuist	59.72	Arabs	55.38
Bokoya	52.08	Shluh	54.84
Maritimes	53.41		

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Nsar, and Beni Hamid have the most compressed malars. Except for Beni Bu Nsar and Beni Hamid these seem to go with the most blondism. The most prominent malars are among the Arabs, Shluh, and Ghomara. The Riffians and Senhaja seem to stand off from the others in their lesser development.

GONIAL ANGLES

The greatest prominence of the gonial angles occurs among the Shluh and in Gzennaya, Targuist, Beni Said, Beni Ulishk, Bokoya, and the Maritime tribes. The least development in the Rif is in Temsaman, Beni Amart, Kebdana, and Galiya. Ktama shows the least of all, and the entire Senhaja and the Ghomara fall below the Riffians in this. Sheshawen and the Arabs represent a moderate condition.

TABLE 77. GONIAL ANGLES

By percentages

	No.	sm.	sm.	+	++	+++
Total Rif	530	.57	16.42	53.83	29.61	.57
		(3)	(87)	(280)	(157)	(3)
Total Senhaja	197	..	24.37	48.21	26.40	1.02
			(48)	(105)	(52)	(2)
Ghomara	73	..	32.89	41.65	25.46	
			(24)	(31)	(18)	
Sheshawen	28	..	17.86	57.12	21.45	3.57
			(5)	(16)	(6)	(1)
Arabs	93	..	16.13	48.40	32.34	3.23
			(15)	(45)	(30)	(3)
Shluh	277	..	13.72	52.70	33.22	.36
			(48)	(105)	(52)	(2)

By means

Kebdana	50.00	Zarket	50.50
Mazuza	53.33	Bu Nsar	49.50
Galiya	52.27	Hamid	51.39
Nomads	44.40	Taghzuth	53.39
Said	56.67	Ktama	40.90
Ulishk	54.62	Ar. Sen.	53.19
Temsaman	47.19		
Tuzin	53.29	Total Rif	53.30
Gzennaya	60.45	Total Senhaja	50.89
Urriaghel	52.54	Ghomara	47.95
Amart	51.14	Sheshawen	52.23
Targuist	58.34	Arabs	52.55
Bokoya	56.25	Shluh	55.01
Maritimes	54.54		

SHOVEL INCISORS

A majority of the Moroccans studied had incisors concave on the inner surface, of the type called "shovel incisors." The Ghomara and Senhaja show the greatest percentage, almost to the exclusion of the other variety. The lowest percentages are found in Ktama, the Maritime tribes, Bokoya, and Beni Urriaghel, while Temsaman, Gzennaya, and Tar-

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guist also run below ninety per cent. Judging by this distribution the shovel type would seem less ancient in the region than the usual variety, despite Beni Amart's desertion to the other side.

TABLE 78. SHOVEL INCISORS

By percentages

	No.	Absent	Present		Absent	Present
Total Rif	505	14.46	85.54	Said	3.33	96.67
		(73)	(432)	Ulishk	5.89	94.11
Total Senhaja	183	4.92	95.08	Temsaman	19.56	80.44
		(9)	(174)	Tuxin	2.86	97.14
Ghomara	67	2.99	97.01	Gzennaya	16.98	83.02
		(2)	(65)	Urriaghel	27.40	72.60
Sheshawen	28	17.90	82.10	Amart	5.55	94.45
		(5)	(23)	Targuist	11.78	88.22
Arabs	87	15.00	85.00	Bokoya	47.80	52.40
		(12)	(85)	Maritimes	40.09	59.91
Shluh	269	17.10	82.90			
		(46)	(223)	Zarket	0	100.00
				Bu Nsar	0	100.00
Kebdana		7.15	92.85	Hamid	6.25	93.75
Masuza		10.00	90.00	Taghzuth	3.78	96.22
Galiya		5.88	94.12	Ktama	20.00	80.00
Nomads		3.55	96.45	Ar. Sen	4.35	95.65

BITE

As with modern Europeans and Americans, a slight overbite seems to be the usual Moroccan form. Marked overbites are the exception in every group, being found in any abundance only among the Arabs. The edge-to-edge bite, which is a primitive condition found in older European cranial series and surviving in neglected corners of Europe today, forms about a third in each group excepting Sheshawen. The area of greatest survival follows the Mediterranean coast from Temsaman through Beni Urriaghel into Bokoya, and recurs again in Zarket, Beni Bu Nsar, among the Arabophone Senhaja, and in Ghomara.

TABLE 79. BITE

By percentages

	No.	Marked over	Slight over	Edge to edge	Under
Total Rif	509	6.48	60.93	32.00	.59
		(33)	(310)	(163)	(3)
Total Senhaja	185	7.45	58.37	33.52	.54
		(14)	(108)	(62)	(1)
Ghomara	72	4.17	55.55	40.28	
		(3)	(40)	(29)	
Sheshawen	25	4.00	76.00	16.00	4.00
		(1)	(19)	(4)	(1)
Arabs	89	20.23	42.69	37.08	
		(18)	(38)	(33)	
Shluh	264	9.84	50.00	39.78	.38
		(26)	(132)	(105)	(1)
Kebdana		14.30	71.40	14.30	
Masuza		3.33	60.00	33.33	3.33
Galiya		10.00	64.00	26.00	

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Nomads	3.57	67.89	32.14	
Said	3.33	80.00	16.67	
Ulishk	5.76	53.84	40.40	
Temsaman	2.17	56.50	41.33	
Tuzin	8.33	61.12	27.77	2.78
Gzennaya	5.66	58.49	35.85	
Urriaghel	6.46	50.00	43.54	
Amart	5.25	89.50	55.25	
Targuist	..	75.00	25.00	
Bokoya	8.70	43.50	47.80	
Maritimes	18.19	59.18	22.73	
Zarket	4.00	52.00	44.00	
Bu Nsar	..	52.00	48.00	
Hamid	..	75.00	25.00	
Taghzuth	14.82	72.21	12.97	
Ktama	5.56	50.00	38.88	5.56
Ar. Sen.	8.70	45.65	45.65	

EAR LOBE, DEVELOPMENT

The lobe of the ear is fairly well developed in all Moroccan groups. Of Riffians and Senhaja, the least development is found in Beni Bu Nsar, Beni Hamid, and Taghzuth, the least European of Senhajan tribes, and the greatest in Beni Said and Zarket. Of the six major groups Sheshawen shows the largest ear lobes and the Arabs the smallest.

TABLE 80. EAR LOBE, DEVELOPMENT

By percentages

	No.	abs.	sem.	sm.	+	++	+++
Total Rif	530	1.32	1.13	31.32	54.34	11.51	.38
		(7)	(6)	(166)	(288)	(61)	(2)
Total Senhaja	196	2.55	2.04	40.80	49.69	6.12	
		(5)	(4)	(80)	(95)	(12)	
Ghomara	73	..	..	28.22	61.64	9.59	
				(21)	(45)	(7)	
Sheshawen	28	..	..	28.58	60.70	10.72	
				(8)	(17)	(3)	
Arabs	93	1.08	..	40.86	51.60	5.38	1.08
		(1)		(38)	(48)	(5)	(1)
Shluh	277	3.25	2.53	32.50	51.21	9.75	.36
		(9)	(7)	(90)	(143)	(27)	(1)

By means

Kebdana	41.50	Zarket	50.00
Mazuza	47.50	Bu Nsar	30.50
Galiya	43.18	Hamid	33.34
Nomads	40.51	Taghzuth	33.33
Said	51.67	Ktama	39.78
Ulishk	47.40	Ar. Sen.	44.94
Temsaman	46.94		
Tuzin	45.39	Total Rif	44.11
Gzennaya	44.05	Total Senhaja	39.69
Urriaghel	37.42	Ghomara	45.89
Amart	47.16	Sheshawen	47.76
Targuist	47.92	Arabs	37.23
Bokoya	41.66	Shluh	41.88
Maritimes	40.91		

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EAR LOBES, ATTACHED AND FREE

The majority of ear lobes examined were seen to be free. In the Ghomara the proportion was particularly high. Attached ears reach a percentage of forty or more in Gzennaya, along the Mediterranean coast from Beni Urriaghel to Mtiwa, and in Zarket, Beni Bu Nsar, and Beni Hamid. This distribution for some reason accords with that of edge-to-edge bites.

TABLE 81. EAR LOBES, ATTACHED AND FREE

By percentages

	No.	Attached	Free		Attached	Free
Total Rif	514	32.30	67.70	Said	16.67	83.33
		(166)	(348)	Ulishk	33.96	66.04
Total Senhaja	193	36.79	63.21	Temsaman	39.11	60.89
		(71)	(122)	Tuzin	31.58	68.42
Ghomara	73	20.55	79.45	Gzennaya	41.82	58.18
		(15)	(58)	Urriaghel	42.63	57.37
Sheshawen	28	35.71	64.29	Amart	31.80	68.20
		(10)	(18)	Targuist	33.33	66.67
Arabs	92	32.61	67.39	Bokoya	54.17	45.83
		(30)	(62)	Maritimes	40.91	59.09
Shluh	268	37.90	62.10			
		(105)	(163)	Zarket	48.00	52.00
				Bu Nsar	47.85	52.15
Kebdana		35.70	64.30	Hamid	52.90	47.10
Mazuza		23.33	76.67	Taghzuth	27.60	72.40
Galiya		21.80	78.20	Ktama	36.56	63.64
Nomads		33.33	66.67	Ar. Sen.	29.80	70.20

HELIX

The helix of the ear attains its maximum roll among the Shluh and Ghomara and in Sheshawen. In the Rif it is greatest in Beni Ulishk, Beni Tuzin, and Beni Amart, and least in the two easternmost tribes and in Beni Urriaghel and the Maritime tribes. In Taghzuth and Ktama it is also relatively lacking.

TABLE 82. HELIX

By percentages

	No.	abs.	sem.	sm.	+	++
Total Rif	530	..	.75	17.73	71.90	9.62
			(4)	(94)	(381)	(51)
Total Senhaja	197	..	.51	19.80	71.56	8.13
			(1)	(39)	(141)	(16)
Ghomara	73	1.37	..	12.33	71.22	15.08
		(1)		(9)	(52)	(11)
Sheshawen	28	..	..	25.00	53.60	21.40
				(7)	(15)	(6)
Arabs	93	..	..	23.65	61.31	15.04
				(22)	(57)	(14)
Shluh	277	.36	.36	13.72	69.30	15.90
		(1)	(1)	(38)	(192)	(44)

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By means

Kebdana	42.86	Zarket	47.00
Mazuza	43.75	Bu Nsar	48.00
Galiya	46.88	Hamid	47.22
Nomads	49.57	Taghzuth	44.88
Said	49.17	Ktama	44.32
Ulishk	51.89	Ar. Sen.	47.60
Temsaman	47.70		
Tuzin	51.98	Total Rif	47.69
Gzennaya	45.91	Total Senhaja	46.89
Urriaghel	44.14	Ghomara	50.00
Amart	50.00	Sheshawen	49.11
Targuist	48.61	Arabs	47.85
Bokoya	48.96	Shluh	50.72
Maritimes	44.32		

ANTIHELIX

The antihelix is relatively prominent among the Nomads and in Beni Tuzin, Beni Amart, Zarket, and Ktama, as well as in Sheshawen. It is least developed in Kebdana, and from Beni Urriaghel to Mtiwa; also among the Shluh.

TABLE 83. ANTIHELIX

By percentages

	No.	abs.	sm.	sm.	+	++
Total Rif	530	.38 (2)	.38 (2)	22.64 (120)	56.68 (318)	19.92 (88)
Total Senhaja	197	..	.51 (1)	17.78 (35)	65.45 (129)	16.26 (32)
Ghomara	73	1.37 (1)	..	9.60 (7)	78.07 (57)	10.96 (8)
Sheshawen	28	..	..	7.15 (2)	82.03 (23)	10.72 (3)
Arabs	93	2.15 (2)	1.08 (1)	17.20 (16)	61.31 (57)	18.26 (17)
Shluh	277	2.53 (7)	.72 (2)	21.66 (60)	60.29 (167)	14.80 (41)

By means

Kebdana	42.86	Zarket	53.00
Mazuza	46.67	Bu Nsar	48.00
Galiya	50.91	Hamid	51.39
Nomads	53.45	Taghzuth	47.88
Said	50.83	Ktama	52.27
Ulishk	50.00	Ar. Sen.	48.67
Temsaman	51.02		
Tuzin	52.63	Total Rif	48.16
Gzennaya	48.18	Total Senhaja	49.30
Urriaghel	41.60	Ghomara	49.66
Amart	52.27	Sheshawen	50.89
Targuist	51.39	Arabs	49.33
Bokoya	36.47	Shluh	46.75
Maritimes	42.73		

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EAR PROTRUSION

The ear protrusion is not excessive anywhere in the area, and is least in Mazuza and Galiya, in the Central Rif, and in Zarket and Beni Bu Nsar. It is greatest in the mesocephalic Sheshawen series and among the Shluh.

In general form and size the ear presents no visible differences from the European range of variation. Luckily the local types of headgear do not disfigure it, as they do in Algeria.

TABLE 84. EAR PROTRUSION

By percentages

	No.	sm.	+	++	+++
Total Rif	529	20.40	61.63	17.59	.38
		(108)	(326)	(93)	(2)
Total Senhaja	197	21.83	64.97	13.20	
		(43)	(128)	(26)	
Ghomara	73	12.33	67.12	19.18	1.37
		(9)	(49)	(14)	(1)
Sheshawen	28	14.32	57.11	28.57	
		(4)	(16)	(8)	
Arabs	93	15.04	61.31	21.50	2.15
		(14)	(57)	(20)	(2)
Shluh	277	14.80	55.57	28.19	1.44
		(41)	(154)	(78)	(4)

By means

Kebdana	58.94	Zarket	45.00
Mazuza	45.84	Bu Nsar	42.00
Galiya	45.91	Hamid	52.78
Nomads	52.58	Taghzuth	48.73
Said	50.00	Ktama	48.83
Ulishk	51.88	Ar. Sen.	48.84
Temsaman	46.17		
Tuzin	51.97	Total Rif	49.43
Gzennaya	55.92	Total Senhaja	47.84
Urriaghel	46.03	Ghomara	52.23
Amart	44.32	Sheshawen	53.57
Targuist	45.83	Arabs	52.42
Bokoya	47.88	Shluh	53.88
Maritimes	46.59		

TEMPORAL FULLNESS

This general observation indicates an excess in favor of the Riffians, with exceptions in the cases of Targuist and the Maritime tribes. The Senhaja run much flatter templed, especially Beni Hamid, Beni Bu Nsar, and Ktama. Sheshawen and the Ghomara resemble the Riffians in this, while the Arabs and Shluh fall below. The two groups with the highest cephalic indices, plus the dolichocephalic Riffians, are thus the fullest templed, while the other true dolichocephals run flatter, giving the Riffians an unique position in this respect.

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TABLE 85. TEMPORAL FULLNESS

By percentages

	No.	sm.	+	++	+++
Total Rif	530	4.34	79.62	16.04	
		(23)	(422)	(85)	
Total Senhaja	197	14.73	77.14	8.13	
		(29)	(152)	(16)	
Ghomara	73	5.48	79.45	13.70	1.37
		(4)	(58)	(10)	(1)
Sheshawen	28	..	89.28	10.72	
			(25)	(3)	
Arabs	93	21.50	60.22	17.20	1.08
		(20)	(56)	(16)	(1)
Shluh	277	18.42	62.42	18.80	.36
		(51)	(173)	(52)	(1)

By means

Kebdana	51.78	Zarket	50.00
Mazuza	52.60	Bu Nsar	46.00
Galiya	52.44	Hamid	43.05
Nomads	56.03	Taghzuth	51.27
Said	50.83	Ktama	44.32
Ulishk	51.89	Ar. Sen.	49.47
Temsaman	54.08		
Tuzin	53.94	Total Rif	52.97
Gzennaya	53.18	Total Senhaja	48.35
Urriaghel	50.78	Ghomara	52.56
Amart	55.68	Sheshawen	52.68
Targuist	48.61	Arabs	49.33
Bokoya	55.20	Shluh	49.77
Maritimes	47.73		

OCCIPITAL PROTRUSION

Similarly, the Riffians go with the Ghomara and the Sheshawen series in reduction of occipital protrusion, whereas the other three long headed groups exceed them and resemble each other. Tribally the greatest occipital protrusion is centered in the northwest coast region, in Targuist, Bokoya, and the Maritimes, where it joins a similar condition in the Senhaja. This combination of differences in temporal fullness and occipital protrusion suggests the presence of two different dolichocephalic types, expressed metrically in the minimum frontal diameter.

TABLE 86. OCCIPITAL PROTRUSION

By percentages

	No.	sbs.	ssm.	sm.	+	++	+++
Total Rif	530	.38	.38	26.40	51.86	20.39	.57
		(2)	(2)	(140)	(285)	(108)	(3)
Total Senhaja	197	..	..	18.28	53.80	27.41	.51
				(36)	(106)	(54)	(1)
Ghomara	73			31.40	53.42	9.60	5.48
				(23)	(39)	(7)	(4)
Sheshawen	28	..	..	28.57	53.60	17.83	
				(8)	(15)	(5)	
Arabs	93	..	..	11.82	68.83	17.20	2.15
				(11)	(64)	(16)	(2)
Shluh	277	..	..	10.10	24.20	62.09	3.61
				(28)	(172)	(67)	(10)

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By means

Kebdana	46.43	Zarket	56.50
Masuza	47.37	Bu Nsar	56.00
Galiya	48.63	Hamid	51.39
Nomads	45.26	Taghzuth	52.12
Said	47.18	Ktama	55.68
Ulishk	49.53	Ar. Sen.	48.40
Temsaman	50.51		
Tusin	48.68	Total Rif	48.82
Gzennaya	45.45	Total Senhaja	52.48
Urriaghel	44.14	Ghomara	46.57
Amart	50.00	Sheshawen	47.32
Targuist	54.87	Arabs	52.15
Bokoya	52.08	Shluh	54.87
Maritimes	54.55		

LAMBDOID FLATTENING

No occipital flattening was found at all, but an oblique flattening in the lambdoid region was noted with over three fourths of all subjects. This disharmonic condition is also a usual feature in the Canarian crania studied by Hooton, especially in Teneriffe.[1] This lambdoid

TABLE 87. LAMBDOID FLATTENING

By percentages

	No.	abs.	sm.	sm.	+	++	+++
Total Rif	530	26.60	..	18.12	36.48	19.05	.75
		(141)		(96)	(188)	(101)	(4)
Total Senhaja	197	25.90	..	19.30	40.07	14.22	.51
		(51)		(38)	(71)	(28)	(1)
Ghomara	73	10.96	..	20.53	37.11	31.40	
		(8)		(15)	(27)	(23)	
Sheshawen	28	17.83	..	10.72	42.98	28.57	
		(5)		(3)	(12)	(8)	
Arabs	93	32.30	..	21.50	35.45	8.60	2.15
		(30)		(20)	(33)	(8)	(2)
Shluh	277	32.13	.36	27.42	28.90	9.39	1.80
		(89)	(1)	(76)	(80)	(26)	(5)

By means

Kebdana	37.50	Zarket	35.50
Masuza	42.50	Bu Nsar	31.00
Galiya	32.52	Hamid	41.66
Nomads	25.17	Taghzuth	33.04
Said	43.34	Ktama	26.14
Ulishk	43.39	Ar. Sen.	42.56
Temsaman	37.76		
Tusin	39.37	Total Rif	37.24
Gzennaya	46.36	Total Senhaja	37.25
Urriaghel	30.84	Ghomara	46.92
Amart	42.04	Sheshawen	45.54
Targuist	38.88	Arabs	31.17
Bokoya	19.29	Shluh	29.70
Maritimes	28.40		

[1] Hooton, E. A. *The Ancient Inhabitants of the Canary Islands.* H.A.S., vol. VII, p. 134.

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flattening is most common in the Rif in the tribes of Mazuza, Beni Said, Beni Ulishk, Gzennaya, and Beni Amart; in the Senhaja it is strongest in Beni Hamid and the Arabophone Senhaja; it is strongest of all in the Ghomara, and is likewise frequent in Sheshawen. Its minimum incidences are among the Nomads, in Bokoya, the Maritime tribes, and Ktama. Among the Arabs and Shluh it is absent in one third of instances.

OCCIPITAL DISHARMONY

A definite depression at lambda, or a depressed junction of the occipital and parietal bones, with the former bone salient and often approaching bathycephaly, is likewise found in some instances. The occipital profile becomes a double rather than a single arc. This condition is manifestly disharmonic and is probably caused by the same influences which have brought about the more frequent lambdoid flattening. It is likewise present in a number of Canarian crania. The distribution of this phenomenon is interesting. In the Rif it is clearly associated with the eastern, but not nomadic, tribes, whereas in the Central Rif it is almost entirely absent. In the Senhaja it is absent in the Zarket sample, and most common in the outer tribes. The northern groups show it more frequently than either the Arabs or Shluh, and in the north its distribution is peripheral to the Central Riffian area, the chief centers being Sheshawen, Ghomara, the Arabophone Senhaja, Taghzuth, Beni Hamid, and the eastern Riffian tribes.

TABLE 88. OCCIPITAL DISHARMONY

By percentages

	No.	Abs.	sm.	+	++
Total Rif	530	83.77	1.70	14.14	.38
		(444)	(9)	(75)	(2)
Total Senhaja	197	84.26	3.05	10.66	2.03
		(166)	(6)	(21)	(4)
Ghomara	73	82.19	4.11	12.33	1.37
		(60)	(3)	(9)	(1)
Sheshawen	28	71.43	7.14	10.71	10.71
		(20)	(2)	(3)	(3)
Arabs	93	92.47	1.08	6.45	
		(86)	(1)	(6)	
Shluh	277	94.22	1.08	3.61	1.08
		(261)	(3)	(10)	(3)

By means

Kebdana	14.29	Zarket	0
Mazuza	5.00	Bu Nsar	3.12
Galiya	10.45	Hamid	9.72
Nomads	5.17	Taghzuth	9.32
Said	15.00	Ktama	5.68
Ulishk	14.62	Ar. Sen.	12.23
Temsaman	10.20		
Tuzin	13.16	Total Rif	7.78
Gzennaya	7.73	Total Senhaja	6.60
Urriaghel	2.34	Ghomara	8.22
Amart	0	Sheshawen	15.18
Targuist	0	Arabs	3.49
Bokoya	1.04	Shluh	2.89
Maritimes	2.27		

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NECK LENGTH

The length of the neck is not very variable in this region. Shortest necks seem to go with the tribes centered around the Nomads, with Targuist, and with the Senhaja, Ghomara, and Shluh. Longer necks are typically Riffian and are likewise characteristic of Sheshawen and of the Arabs.

TABLE 89. NECK LENGTH

By percentages

	No.	sm.	sm.	+	++	+++
Total Rif	530	..	22.81	71.34	5.66	.19
			(121)	(378)	(30)	(1)
Total Senhaja	197	..	34.52	58.38	7.10	
			(68)	(115)	(14)	
Ghomara	73	..	42.47	54.79	2.74	
			(31)	(40)	(2)	
Sheshawen	28	..	42.98	53.45	3.57	
			(12)	(15)	(1)	
Arabs	93	..	22.56	68.83	7.53	1.08
			(21)	(64)	(27)	(1)
Shluh	277	1.03	30.32	59.57	9.03	
		(3)	(84)	(165)	(25)	

By means

Kebdana	48.21	Zarket	43.00
Mazuza	48.33	Bu Nsar	44.00
Galiya	42.26	Hamid	45.83
Nomads	45.69	Taghzuth	42.80
Said	44.17	Ktama	42.04
Ulishk	45.28	Ar. Sen.	42.03
Temsaman	45.92		
Tuzin	49.34	Total Rif	45.78
Gzennaya	46.97	Total Senhaja	43.14
Urriaghel	46.74	Ghomara	44.71
Amart	50.67	Sheshawen	47.50
Targuist	44.44	Arabs	46.64
Bokoya	46.88	Shluh	44.17
Maritimes	46.59		

NECK THICKNESS

Nutritional differences seem to appear between the fat burghers of Sheshawen and the underfed Shluh and people of Ktama. As far as the others are concerned little variation appears.

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TABLE 90. NECK THICKNESS

By percentages

	No.	sm.	+	++	+++
Total Rif	530	15.46 (82)	73.22 (388)	11.13 (59)	.19 (1)
Total Senhaja	197	25.40 (50)	63.94 (126)	10.66 (21)	
Ghomara	73	30.14 (22)	63.01 (46)	6.85 (5)	
Sheshawen	28	25.00 (7)	46.43 (13)	28.57 (8)	
Arabs	93	15.04 (14)	76.36 (71)	8.60 (8)	
Shluh	277	31.77 (88)	59.57 (165)	8.66 (24)	

By means

Kebdana	50.00	Zarket	48.00
Mazuza	51.67	Bu Nsar	45.00
Galiya	49.09	Hamid	41.66
Nomads	48.28	Taghzuth	47.88
Said	52.92	Ktama	38.63
Ulishk	48.72	Ar. Sen.	49.47
Temsaman	46.43		
Tuzin	50.00	Total Rif	48.99
Gzennaya	47.72	Total Senhaja	45.05
Urriaghel	48.44	Ghomara	44.17
Amart	51.14	Sheshawen	50.89
Targuist	50.00	Arabs	48.39
Bokoya	46.88	Shluh	44.22
Maritimes	48.86		

SHOULDER SLOPE

The Riffians and other North Moroccans give one the impression of being squarer shouldered than most Europeans. This is perhaps connected with their extraordinary chest development. The only noteworthy tribal variation is that the Nomads have by far the most sloping shoulders of all. Of the six total groups, the Shluh and Ghomara, especially the latter, have the least.

TABLE 91. SHOULDER SLOPE

By percentages

	No.	abs.	sem.	sm.	+	++	+++
Total Rif	530	2.64 (14)	.19 (1)	52.28 (277)	34.32 (182)	10.19 (54)	.38 (2)
Total Senhaja	197	2.54 (5)	..	54.80 (108)	33.52 (66)	9.14 (18)	
Ghomara	73	2.74 (2)	..	63.01 (46)	30.14 (22)	4.11 (3)	
Sheshawen	28	..	..	50.00 (14)	42.86 (12)	7.14 (2)	
Arabs	93	8.60 (8)	..	45.20 (42)	35.45 (33)	10.75 (10)	
Shluh	277	5.42 (15)	..	45.58 (155)	31.42 (86)	7.22 (20)	.36 (1)

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By means

Kebdana	39.24	Zarket	38.00
Mazuza	41.67	Bu Nsar	38.00
Galiya	36.35	Hamid	41.66
Nomads	47.41	Taghzuth	37.28
Said	35.01	Ktama	39.77
Ulishk	32.05	Ar. Sen.	35.12
Temsaman	33.92		
Tuzin	36.84	Total Rif	38.24
Gzennaya	37.27	Total Senhaja	37.30
Urriaghel	39.24	Ghomara	33.90
Amart	33.17	Sheshawen	39.28
Targuist	30.27	Arabs	37.10
Bokoya	50.52	Shluh	35.23
Maritimes	40.90		

CHEST DEVELOPMENT

In chest development the Riffians exceed Europeans, judging by general appearances, and likewise exceed all other Moroccans. The deepest, fullest chests are centered in the east and center of the Rif, with Temsaman, Beni Ulishk, and Beni Tuzin forming a gap between, and Bokoya and the Maritimes grading down to the west. Zarket and Beni Bu Nsar likewise have a development similar to that of the Riffians, while the rest of the

TABLE 92. CHEST DEVELOPMENT

By percentages

	No.	sm.	+	++	+++
Total Rif	529	12.66	57.67	28.91	.76
		(67)	(305)	(153)	(4)
Total Senhaja	197	14.73	61.92	20.81	2.54
		(29)	(122)	(41)	(5)
Ghomara	73	10.96	73.97	15.07	
		(8)	(54)	(11)	
Sheshawen	28	25.00	53.57	21.43	
		(7)	(15)	(6)	
Arabs	94	19.36	62.38	18.26	
		(18)	(58)	(17)	
Shluh	275	22.91	62.18	14.91	
		(63)	(171)	(41)	

By means

Kebdana	51.79	Zarket	57.50
Mazuza	59.58	Bu Nsar	55.50
Galiya	58.64	Hamid	50.00
Nomads	53.01	Taghzuth	53.69
Said	57.08	Ktama	42.04
Ulishk	51.42	Ar. Sen.	51.06
Temsaman	47.45		
Tuzin	51.35	Total Rif	54.35
Gzennaya	53.18	Total Senhaja	52.48
Urriaghel	65.32	Ghomara	51.03
Amart	56.82	Sheshawen	49.11
Targuist	55.56	Arabs	49.73
Bokoya	48.96	Shluh	48.00
Maritimes	53.41		

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Senhaja taper off towards the normal Moroccan condition, which is as great as or greater than that of Europeans as a whole. The lowest development, found among the people of Ktama, again reflects their malnutrition.

LUMBAR CURVE

The lumbar curve of the northern Moroccans is similar to that of any Europeans living under primitive conditions and walking habitually over rough ground. Sheshawen shows the greatest curve, here again exhibiting the sedentary nature of these tradesmen. The Shluh present the least European mean, while tribally the only excessive delinquency is with Ktama, which has shown unusual tendencies, mostly connected with nutrition, in other ways. The connection between lumbar curve and nutrition is not clear, unless by accentuating the buttocks better feeding would exaggerate its appearance. In this case it is the non-European quality of the Ktama group, manifest in certain other features, which is probably indicated.

TABLE 93. LUMBAR CURVE

By percentages

	No.	abs.	sem.	sm.	+	++	+++
Total Rif	528	..	..	14.96	73.30	11.55	.19
				(79)	(387)	(61)	(1)
Total Senhaja	197	1.02	.51	18.28	62.42	17.77	
		(2)	(1)	(36)	(123)	(35)	
Ghomara	73	..	..	26.03	56.16	17.8	
				(19)	(41)	(13)	
Sheshawen	28	..	..	17.96	53.57	28.57	
				(5)	(15)	(8)	
Arabs	93	2.15	..	22.56	59.16	16.13	
		(2)		(21)	(55)	(15)	
Shluh	277	.36	..	33.93	56.32	9.39	
		(1)		(94)	(156)	(26)	

By means

Kebdana	53.57	Zarket	49.50
Masuza	45.84	Bu Nsar	49.00
Galiya	48.15	Hamid	50.00
Nomads	48.28	Taghsuth	52.12
Said	51.87	Ktama	34.08
Ulishk	52.83	Ar. Sen.	52.13
Temsaman	47.45		
Tuzin	51.35	Total Rif	49.22
Gzennaya	52.73	Total Senhaja	49.12
Urriaghel	45.70	Ghomara	47.94
Amart	50.00	Sheshawen	52.68
Targuist	54.87	Arabs	47.31
Bokoya	47.92	Shluh	43.68
Maritimes	44.32		

ABDOMEN, PROMINENCE

This again shows quantitative and qualitative food differences in such extent as to obscure racial values. Age differences also have an effect. The flourishing paunches of the Beni Said and Targuist samples reflect the fact that I measured in these tribes many Coun-

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cillors, Kaids, and wealthy men who do little manual labor. In Sheshawen the effects of shopkeeping are again shown. It is probably also true, however, that the thickset type found in these places would naturally run more to fat than the slenderer inhabitants of Beni Urriaghel and Beni Amart, all conditions equal. In Taghzuth the sedentary leatherworkers are the paunchiest of the Senhajans. The people of Ktama and Beni Bu Nsar run lean in this respect, as do the Shluh. The first two named have had their guns taken away and can no longer kill wild boar, their chief supply of animal food.

TABLE 94. ABDOMEN, PROMINENCE

By percentages

	No.	mm.	cm.	+	++	+++
Total Rif	529	..	17.19	72.98	9.26	.57
			(91)	(386)	(49)	(3)
Total Senhaja	197	..	15.23	75.14	9.12	.51
			(30)	(148)	(18)	(1)
Ghomara	73	..	12.33	83.56	4.11	
			(9)	(61)	(3)	
Sheshawen	28	..	21.43	53.57	21.43	3.57
			(6)	(15)	(6)	(1)
Arabs	93	..	9.68	83.86	5.38	1.08
			(9)	(78)	(5)	(1)
Shluh	277	.36	24.91	66.79	7.94	
		(1)	(69)	(185)	(22)	

By means

Kebdana	51.79	Zarket	50.00
Masuza	45.84	Bu Nsar	44.00
Galiya	45.45	Hamid	47.22
Nomads	47.41	Taghzuth	52.75
Said	56.24	Ktama	44.32
Ulishk	52.36	Ar. Sen.	48.40
Temsaman	47.96		
Tuzin	50.68	Total Rif	48.28
Gzennaya	49.54	Total Senhaja	48.67
Urriaghel	44.52	Ghomara	47.94
Amart	43.18	Sheshawen	51.34
Targuist	55.17	Arabs	49.33
Bokoya	44.80	Shluh	45.62
Maritimes	46.59		

BUTTOCKS

Buttock development is greatest in the Riffians and least in the Shluh; within the Rif it is greatest in Beni Said and Targuist; within the Senhaja in Zarket, for some obscure reason, possibly being its propinquity to Targuist and a consequent similarity in build. In Ktama as is to be expected the thinnest flanks are found. Body build and nutrition again are both indicated.

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TABLE 95. BUTTOCKS

By percentages

	No.	sm.	+	++	+++
Total Rif	529	18.71 (99)	72.03 (381)	8.88 (47)	.38 (2)
Total Senhaja	197	21.32 (42)	70.56 (139)	8.12 (16)	
Ghomara	73	21.92 (16)	72.60 (53)	5.48 (4)	
Sheshawen	28	35.71 (10)	42.86 (12)	21.43 (6)	
Arabs	93	25.80 (24)	63.45 (59)	10.75 (10)	
Shluh	277	29.96 (83)	63.18 (175)	6.86 (19)	

By means

Hebdana	50.00	Zarket	53.00
Mazuza	46.67	Bu Nsar	41.00
Galiya	46.82	Hamid	45.83
Nomads	48.28	Taghzuth	46.61
Said	52.08	Ktama	38.63
Ulishk	49.06	Ar. Sen.	50.53
Temsaman	44.90		
Tuzin	48.03	Total Rif	47.68
Gzennaya	50.00	Total Senhaja	46.70
Urriaghel	44.53	Ghomara	45.89
Amart	48.86	Sheshawen	46.43
Targuist	54.87	Arabs	46.23
Bokoya	46.88	Shluh	44.22
Maritimes	45.59		

THIGHS

Except for the corpulent merchants of Sheshawen the Riffians have the best developed thighs, and the others grade down to the Shluh, with the thinnest. Bokoya and Temsaman are thinnest thighed of the Riffians, exhibiting a not uncommon aberrancy, and the Central tribes seem on the whole the best equipped, as well as Beni Said and Mazuza. Among the Senhaja only Zarket attains a comparable heaviness, while Ktama once more exhibits its

TABLE 96. THIGHS

By percentages

	No.	ssm.	sm.	+	++	+++
Total Rif	529	..	12.10 (64)	71.46 (378)	15.87 (84)	.57 (3)
Total Senhaja	197	..	20.81 (41)	64.97 (128)	14.22 (28)	
Ghomara	73	..	26.03 (19)	69.86 (51)	4.11 (3)	
Sheshawen	28	..	17.96 (5)	57.04 (16)	25.00 (7)	
Arabs	93	..	26.88 (25)	66.70 (62)	6.45 (6)	
Shluh	276	.36 (1)	38.04 (105)	55.80 (154)	5.80 (16)	

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malnutrition. One cannot ascribe heavy thigh development any more than chest development entirely to a mountain habitat, since the heights the Ktama tribesmen and Shluh scale are greater than those of the Rif, and the slopes equally steep.

By means

Kebdana	51.79	Zarket	56.00
Masuza	54.16	Bu Nsar	46.00
Galiya	48.18	Hamid	44.44
Nomads	50.43	Taghsuth	50.00
Said	55.00	Ktama	39.77
Ulishk	50.47	Ar. Sen.	47.87
Temsaman	47.45		
Tuzin	50.00	Total Rif	51.16
Gzennaya	55.36	Total Senhaja	48.35
Urriaghel	50.39	Ghomara	44.52
Amart	54.55	Sheshawen	51.79
Targuist	55.73	Arabs	44.89
Bokoya	47.92	Shluh	41.85
Maritimes	52.27		

CALVES

The distribution of calf development accords with that of thighs. Riffians have sturdier calves than do most Europeans, being comparable to the Swiss and other stocky Central Europeans in this respect. Except for Zarket the others are relatively slender shanked.

TABLE 97. CALVES

By percentages

	No.	----	---	+	++	+++
Total Rif	528	..	13.06	69.23	16.85	.76
			(69)	(366)	(89)	(4)
Total Senhaja	197	..	20.81	64.97	14.22	
			(41)	(128)	(28)	
Ghomara	73	..	26.03	69.89	4.11	
			(19)	(51)	(3)	
Sheshawen	28	..	17.96	57.04	25.00	
			(5)	(16)	(7)	
Arabs	93	..	28.71	61.31	9.68	
			(27)	(57)	(9)	
Shluh	276	.36	44.20	48.91	6.53	
		(1)	(122)	(135)	(18)	

By means

Kebdana	51.79	Zarket	55.00
Masuza	52.50	Bu Nsar	46.00
Galiya	48.18	Hamid	44.44
Nomads	50.43	Taghsuth	50.42
Said	55.00	Ktama	39.77
Ulishk	50.47	Ar. Sen.	47.87
Temsaman	47.96		
Tuzin	50.00	Total Rif	51.23
Gzennaya	54.32	Total Senhaja	48.35
Urriaghel	50.00	Ghomara	44.52
Amart	54.55	Sheshawen	51.79
Targuist	55.73	Arabs	45.16
Bokoya	47.92	Shluh	40.48
Maritimes	52.27		

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HEEL PROJECTION

In heel projection no indication of negroid influence is found in any region by means. Heels project very little, again as in Central Europeans. The least projection of all is found in Targuist, Beni Amart, and Kebdana, and the most in Bokoya. Of the total groups the Arabs show the most and the Ghomara the least, if we go by the means. Looking, however, at the percentages we see that the Shluh have the most ++ and +++ cases, both relatively and absolutely, and the Arabs over twice as many proportionately as any of the four northern groups, a difference which does not come out clearly in the means.

TABLE 98. HEEL PROJECTION

By percentages

	No.	mm.	cm.	+	++	+++
Total Rif	527	.19	33.40	60.15	6.26	
		(1)	(176)	(317)	(33)	
Total Senhaja	192	..	50.00	43.75	6.25	
			(96)	(84)	(12)	
Ghomara	73	..	51.39	43.06	5.55	
			(37)	(31)	(4)	
Sheshawen	28	..	42.86	53.57	3.57	
			(12)	(15)	(1)	
Arabs	93	..	26.91	58.03	13.98	1.08
			(25)	(54)	(13)	(1)
Shluh	275	..	23.65	56.35	18.91	1.09
			(65)	(155)	(52)	(3)

By means

Kebdana	35.00	Zarket	40.46
Masuza	43.33	Bu Nsar	42.00
Galiya	41.36	Hamid	37.50
Nomads	43.96	Taghzuth	37.20
Said	43.33	Ktama	44.04
Ulishk	43.03	Ar. Sen.	36.70
Temsaman	41.87		
Tuzin	42.76	Total Rif	43.15
Gzennaya	44.90	Total Senhaja	39.07
Urriaghel	43.65	Ghomara	38.56
Amart	35.25	Sheshawen	40.15
Targuist	34.32	Arabs	47.28
Bokoya	50.00	Shluh	42.28
Maritimes	48.86		

FOOT ARCH

Among the Riffians and Senhaja the foot arch is developed to a normal European degree, while among the Ghomara it is highest of all. In the Rif Temsaman, Beni Ulishk, and Targuist have the highest arches while in the Senhaja this characteristic is more developed in general than in the Rif. The highest arches are found in Beni Hamid and Ktama. The Arab mean is similar to that of the Riffians while that of the Shluh is lowest. On the whole, no negroid influence can be traced in this character.

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TABLE 99. FOOT ARCH

By percentages

	No.	abs.	ssm.	sm.	+	++	+++
Total Rif	525	.76	1.14	23.81	56.76	17.53	
		(4)	(6)	(125)	(298)	(92)	
Total Senhaja	192	..	..	21.34	52.61	26.05	
				(41)	(101)	(50)	
Ghomara	72	..	..	18.06	65.28	16.67	
				(13)	(12)	(47)	
Sheshawen	28	..	..	28.57	60.71	10.72	
				(8)	(17)	(3)	
Arabs	93	1.08	..	24.73	58.06	16.13	
		(1)		(23)	(54)	(15)	
Shluh	276	2.54	.36	27.51	56.60	12.63	.36
		(7)	(1)	(76)	(156)	(35)	(1)

By means

Kebdana	43.74	Zarket	50.00
Mazuza	49.17	Bu Nsar	50.00
Galiya	47.50	Hamid	52.78
Nomads	46.12	Taghzuth	51.70
Said	45.00	Ktama	52.38
Ulishk	50.96	Ar. Sen.	51.06
Temsaman	52.80		
Tuzin	46.71	Total Rif	47.62
Gzennaya	44.44	Total Senhaja	50.91
Urriaghel	46.77	Ghomara	61.81
Amart	42.85	Sheshawen	55.53
Targuist	51.39	Arabs	47.31
Bokoya	44.80	Shluh	45.01
Maritimes	43.18		

HALLUX LENGTH

This observation expresses the length of the great toe in relation to the second toe. In all of the six total series the second toe is seen to be slightly longer. The opposite condition occurs only in Kebdana, Mazuza, Beni Urriaghel, and Zarket.

TABLE 100. HALLUX LENGTH

(In relation to length of second toe)

By percentages

	No.	ssm.	sm.	+	++
Total Rif	515	..	23.11	60.98	15.91
			(119)	(314)	(82)
Total Senhaja	191	.52	19.39	63.96	14.13
		(1)	(37)	(126)	(27)
Ghomara	73	..	24.29	65.71	10.00
			(17)	(46)	(7)
Sheshawen	28	..	25.00	57.04	17.96
			(7)	(16)	(5)
Arabs	93	..	20.44	63.43	16.13
			(19)	(59)	(15)
Shluh	276	.36	18.82	62.34	18.48
		(1)	(52)	(172)	(51)

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By means

Kebdana	53.57	Zarket	53.75
Mazuza	50.00	Bu Nsar	46.00
Galiya	44.54	Hamid	45.83
Nomads	45.69	Taghzuth	47.88
Said	49.17	Ktama	47.62
Ulishk	48.31	Ar. Sen.	50.00
Temsaman	47.45		
Tuzin	44.08	Total Rif	48.20
Gzennaya	48.61	Total Senhaja	48.49
Urriaghel	53.97	Ghomara	46.43
Amart	48.33	Sheshawen	48.21
Targuist	44.11	Arabs	48.93
Bokoya	48.81	Shluh	49.77
Maritimes	45.24		

HALLUX, INTERVAL

The interval between the great and second toes is small in all six divisions, probably less than in most Europeans, despite the fact that many of these people wear sandals held on by a strap between these toes. The least interval is found in the Nomads and surrounding tribes, as well as in the Beni Bu Nsar and Taghzuth, while the greatest goes definitely with the Central Riffian area.

TABLE 101. HALLUX, INTERVAL

By percentages

	No.	sm.	+	++	+++
Total Rif	513	33.79 (173)	48.76 (250)	17.16 (88)	.39 (2)
Total Senhaja	190	45.81 (87)	40.50 (77)	13.69 (26)	
Ghomara	70	38.57 (27)	42.86 (30)	18.57 (13)	
Sheshawen	28	42.86 (12)	42.86 (12)	14.28 (4)	
Arabs	93	39.80 (37)	48.37 (45)	11.83 (11)	
Shluh	277	37.45 (103)	38.54 (106)	22.91 (63)	1.09 (3)

By means

Kebdana	44.64	Zarket	50.00
Mazuza	42.50	Bu Nsar	37.00
Galiya	36.35	Hamid	50.00
Nomads	35.69	Taghzuth	38.98
Said	35.00	Ktama	48.81
Ulishk	48.11	Ar. Sen.	39.36
Temsaman	47.45		
Tuzin	46.71	Total Rif	46.01
Gzennaya	45.37	Total Senhaja	41.97
Urriaghel	50.40	Ghomara	45.00
Amart	52.68	Sheshawen	42.85
Targuist	57.35	Arabs	43.02
Bokoya	46.43	Shluh	46.19
Maritimes	45.24		

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GENERAL MUSCULATURE

An impression of the muscular development of the body as a whole shows the Riffians to be the best equipped of all the groups, and the Shluh the worst. Within the Rif the least heavily muscled are the Nomads, and within the Senhaja, Ktama, as would be expected, reaches the lowest point of all. The musculature of the Riffians gives one the impression of compactness and quick strength rather than of excessive bulk.

TABLE 102. GENERAL MUSCULATURE

By percentages

	No.	mm.	sm.	+	++	+++
Total Rif	529	.57	21.18	67.20	10.77	.38
		(3)	(112)	(355)	(57)	(2)
Total Senhaja	197	.51	24.39	65.45	9.65	
		(1)	(48)	(129)	(19)	
Ghomara	73	1.37	27.40	64.38	6.85	
		(1)	(20)	(47)	(5)	
Sheshawen	28	..	14.30	85.70		
			(4)	(24)		
Arabs	93	1.08	27.96	65.58	5.38	
		(1)	(26)	(61)	(5)	
Shluh	277	1.08	38.05	55.07	5.80	
		(3)	(105)	(152)	(16)	

By means

Kebdana	48.21	Zarket	49.00
Mazuza	52.50	Bu Nsar	44.00
Galiya	46.04	Hamid	43.05
Nomads	42.24	Taghzuth	50.00
Said	49.17	Ktama	36.92
Ulishk	45.28	Ar. Sen.	46.28
Temsaman	44.64		
Tuzin	47.04	Total Rif	47.33
Gzennaya	50.91	Total Senhaja	46.14
Urriaghel	49.02	Ghomara	44.35
Amart	47.73	Sheshawen	46.43
Targuist	47.22	Arabs	43.95
Bokoya	46.88	Shluh	41.58
Maritimes	48.30		

FATTY DEPOSITS

The relative corpulence of the groups listed depends wholly, as far as can readily be seen, upon the social and occupational selection of the subjects; the wealthy political leaders in Beni Said and Targuist, the leatherworkers in Taghzuth, and the shopkeepers in Sheshawen manifesting the only great differences from the normal condition. The Riffians do not, like the Arabs, admire corpulence. Their strenuous outdoor lives keep most of them in excellent physical condition and do not permit the accumulation of much fat. When, however, they cease manual work and long distance walking they tend to become very fat, like athletes out of training.

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TABLE 103. FATTY DEPOSITS

By percentages

	No.	abs.	sm.	+	++	+++
Total Rif	529	82.83	6.24	6.96	3.59	.38
		(438)	(33)	(37)	(19)	(2)
Total Senhaja	197	81.27	10.61	7.11	1.01	
		(160)	(21)	(14)	(2)	
Ghomara	73	82.19	8.22	9.59		
		(60)	(6)	(7)		
Sheshawen	28	60.71	3.57	10.72	25.00	
		(17)	(1)	(3)	(7)	
Arabs	93	86.02	5.38	8.60		
		(80)	(5)	(8)		
Shluh	277	90.97	4.70	3.97	.36	
		(252)	(13)	(11)	(1)	

By means

Kebdana	5.35	Zarket	5.00
Mazuza	4.17	Bu Nsar	9.00
Galiya	4.10	Hamid	6.95
Nomads	6.03	Taghzuth	10.86
Said	20.82	Ktama	4.49
Ulishk	9.90	Ar. Sen.	2.13
Temsaman	3.06		
Tuzin	8.55	Total Rif	8.08
Gzennaya	3.18	Total Senhaja	6.97
Urriaghel	8.60	Ghomara	6.85
Amart	1.14	Sheshawen	25.00
Targuist	22.25	Arabs	5.75
Bokoya	7.29	Shluh	3.43
Maritimes	6.82		

STEATOPYGIA

Out of the entire series twenty men were found with accumulations of fat on the buttocks sufficient in quantity and prominence to justify the name of steatopygia, a peculiarity for which the Bushmen and Hottentots are famous, and which was apparently an ideal of beauty in Europe during the Upper Paleolithic. It is noteworthy that nine out of ten Riffians presenting this quality were from Gzennaya or Beni Urriaghel, located in the area of slightest outside influence in the Rif.

TABLE 104. STEATOPYGIA

By percentages

	No.	Present	Absent		No.	Present	Absent
Total Rif	529	1.89	98.11	Shluh	277	2.17	97.83
		(10)	(519)			(6)	(271)
Total Senhaja	197	.51	99.49				
		(1)	(196)			Tribally	
Ghomara	73	0	100.00	Gzennaya	55	7.28	92.72
		(0)	(73)			(4)	(51)
Sheshawen	28	0	100.00	Urriaghel	64	7.82	92.18
		(0)	(28)			(5)	(59)
Arabs	93	3.23	96.77	Ar. Sen. (el Khemes)	47	2.13	97.87
		(3)	(90)			(1)	(46)

The other tribes of the Rif and Senhaja have no steatopygous individuals. The tenth steatopygous individual of the Riffian series is the son of a Galiya father and a Beni Said mother, and hence does not fall within any single tribal series.

One of the steatopygous Shluh is likewise steatomerious.

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ANOMALOUS

One subject from Beni Urriaghel was found to possess female breasts, quite large and well developed. Such was his shame over this that unfortunately it was impossible to obtain a good picture of him with the breasts exposed.

PATHOLOGICAL

Smallpox was the most frequent disease the vestiges of which we discovered. No active cases were seen. Favus, often in an active and serious stage, was the especial malady of the Shluh, along with eye defects, including blindness and what appeared to be trachoma. Serious wounds and resultant scars appeared in only eight per cent of Riffians, despite the common tradition that they are "covered with scars." They delighted in exhibiting them and hence few went unrecorded. I declined to attempt the diagnosis of syphilis since one lacking in medical training may easily acquire the habit of calling numerous maladies by that name. The two atrophied noses, however, probably owe their condition to that ailment. I saw no person with locomotor ataxia, and none with facial sores which remotely resembled syphilis. Occasional sores on the shins suggested it, however. These were most numerous among the Shluh. One subject had been trephined by local methods. Two eunuchs were examined, one in Beni Tuzin and the other in Targuist. The one in Beni Tuzin is said to have been castrated by his father's enemies, and the other, a schoolmaster, by Arabs. Another one, a servant of the local sherif, was seen in the Zawia of Tizi Ifri between Beni Amart and Beni Beshir. Castration cannot be a common practice since in travelling through all the tribes only three eunuchs were seen.

Pulmonary disorders were never encountered in the Rif. Some of the Shluh appeared to be suffering from tuberculosis, probably as a result of their general run down and half starved condition. The condition of the teeth was not especially good; worse than among most Europeans but perhaps better than one finds in the British Isles. Decay was present in most mouths, and the only remedy extraction. Only around Melilla has a desire for gold teeth impelled some of the Riffians towards the dentist's chair; for the others dentists are distant and unknown.

TABLE 105. PATHOLOGICAL

		By percentages				
	No.	Smallpox	Favus	Atrophied Nose	Eye Defects	Wounds
Total Rif	530	11.51	1.70	.19	5.47	7.93
		(61)	(9)	(1)	(29)	(42)
Total Senhaja	197	7.11	4.57	.51	4.06	5.58
		(14)	(9)	(1)	(8)	(11)
Ghomara	73	6.85	2.74	..	5.85	
		(5)	(2)		(4)	
Sheshawen	28	17.86	..	..	..	7.14
		(5)				(2)
Arabs	93	..	..	..	..	7.53
						(7)
Shluh	277	10.47	11.55	..	14.44	8.66
		(29)	(32)		(41)	(24)

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CHAPTER XX

METRICAL ANALYSIS OF SIX MOROCCAN AND SEVEN COMPARATIVE GROUPS

TABLE 106. DISPERSION OF VALUES OF XP.E. IN THIRTY-ONE CHARACTERS

	-1	1-2	2-3	3-4	4-5	5-6	6+	Mean XP.E.
Normal	*15.50*	*9.92*	*4.34*	*1.02*	*.20*	*.02*	*0*	*1.23*
Rif-Senhaja	9	5	3	5	4	1	4	2.60
Rif-Ghomara	4	4	3	5	5	5	5	3.88
Rif-Sheshawen	6	5	1	10	3	2	4	3.21
Rif-Arabs	9	7	4	5	1	1	4	2.54
Rif-Shluh	1	2	0	2	4	0	22	6.21
Senhaja-Ghomara	5	7	8	6	2	2	1	2.68
Senhaja-Sheshawen	4	7	7	4	3	1	5	3.23
Senhaja-Arabs	11	8	6	3	2	0	1	2.00
Senhaja-Shluh	4	1	0	5	6	4	11	5.13
Ghomara-Sheshawen	6	9	9	0	4	1	2	2.73
Ghomara-Arabs	7	4	9	4	2	1	4	2.96
Ghomara-Shluh	6	4	6	2	2	5	6	3.64
Sheshawen-Arabs	7	8	5	2	2	4	3	3.02
Sheshawen-Shluh	4	6	6	4	1	2	8	4.00
Arabs-Shluh	6	4	6	6	4	1	4	3.16

Average difference from other five groups

Rif	3.69
Senhaja	3.13
Ghomara	3.18
Sheshawen	3.24
Arabs	2.74
Shluh	4.43
Average difference between groups	3.40

MEAN VALUES OF XP.E. BETWEEN MOROCCAN GROUPS AND COMPARATIVE SERIES

Number of Criteria	20 Kabyles	20 Shawia	25 Irak	21 Negroes	19 Spain	15 Norway	13 Sweden
Rif	6.28	4.40	5.50	13.37	5.54	20.24	14.11
Senhaja	5.34	3.68	5.36	9.05	4.69	15.11	9.23
Ghomara	4.82	3.50	5.15	9.68	3.15	8.99	5.55
Sheshawen	3.90	3.02	4.66	7.83	3.03	7.03	3.98
Arabs	4.99	3.56	4.45	9.55	4.44	10.06	6.22
Shluh	6.31	5.25	6.51	11.82	4.62	19.34	9.74
Mean	*5.27*	*3.90*	*5.27*	*10.22*	*4.24*	*13.46*	*8.14*

SIGNIFICANCE OF DIFFERENCES BETWEEN GROUPS

THE first essential in an intercomparison of this sort is to determine whether or not the various groups differ from one another in a statistically significant manner. We must see if the contiguous Moroccan groups are dissimilar enough to warrant separate consideration on a racial basis, and if any of these groups are close enough to any of the comparative series so that they may be considered one with them, or, lacking more examples, parts of a whole.

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Since such great disparities occur in the sizes of the series so compared the expression of the difference in terms of the probable error must be taken to signify presence or absence of statistically significant differences, rather than comparative degrees of similarity, which can better be expressed by the means of the raw differences.

Goring states that "in random samples of the same population, differences between the means, frequencies, or other statistical values, will be, in 50 per cent of cases, less in value than the P.E. of the differences, in 82 per cent will be less than 2 P.E., and in 96 per cent will be less than 3 P.E. A difference greater than 4 P.E. will occur only 7 times in a thousand; greater than 5 P.E., 7 times in ten thousand."

In the accompanying table the number 31, representing the sum of characters employed, is divided into the normal portions according to the expected values of XP.E. The table is laid out according to Goring's own model. It may clearly be seen, if we accept this method, that no two Moroccan groups are similar enough in the characters chosen to justify their consideration as parts of a whole, or to justify the seriation of a total Moroccan series from the present data. In other words, the samples measured are in each case large enough to show their anthropometric individualities.

The closest to the normal pattern and in mean value of XP.E. is the relationship between the Senhaja and the Arabs, which are not the smallest groups. The Riffians and Shluh, the two largest groups, are mutually the most distant, as is to be expected. Contrary to numerical order, the Arabs appear the most generalized and the Shluh the most specialized of the six. Relative degrees of similarity can best be determined, however, by a study of actual differences, leaving to the present method its function of determining statistical significance.

The average difference between Moroccan groups is less than the average difference between any one of the seven comparative groups and the Moroccans as a whole. In no case is the mean difference between any Moroccan and any comparative series less than 3 P.E. Hence we may not imagine statistical identity between any Moroccan and any comparative group. Considering the small sizes of the groups in both categories this significant segregation is remarkable. Between such small groups low values of XP.E. would have indicated failure to establish differences rather than proof of similarity.

It is not necessary to plot the dispersions of XP.E. in these comparisons since the mean values are so positive. In this expression the Negroes, with a sample of only one hundred, fall between the Norwegians and Swedes, with their tens of thousands of subjects. Within the columns of the table the relative sizes of the Moroccan series are indicated, and little else except the positive significance of all comparisons.

TABLE 107. AVERAGE DIFFERENCES BETWEEN SIX MOROCCAN GROUPS

MEANS OF EIGHT MEASUREMENTS OF THE BODY

	Average Differences in Centimeters						*Difference equals X times P.E.*					
	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh
Rif	--	..	..	..	..	..	--	..	..	..	..	..
Senhaja...	.63	--	..	..	..	..	3.53	--	..	..	..	..
Ghomara .	1.47	1.04	--	..	..	..	4.51	2.73	--	..	..	..
Sheshawen	2.05	1.67	1.30	--	..	..	4.97	4.36	4.65	--	..	..
Arabs	.61	.48	1.29	2.28	--	..	3.73	2.85	4.08	5.44	--	..
Shluh	2.02	1.48	.68	1.73	1.44	--	12.00	7.74	3.50	6.19	4.47	--
Mean.....	*1.36*	*1.06*	*1.16*	*1.81*	*1.22*	*1.47*	*5.75*	*4.24*	*3.89*	*5.00*	*4.11*	*6.78*

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Means of Four Indices of Bodily Proportions

Average Differences in Index Points | *Difference equals X times P.E.*

	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh
Rif	--	..	..	..	..	..	--	..	..	..	..	..
Senhaja...	.10	--	..	..	..	..	1.28	--	..	..	..	..
Ghomara .	.19	.25	--	..	..	..	1.52	2.03	--	--	..	..
Sheshawen	.71	.73	.83	--	..	..	3.65	3.85	3.90	--	..	..
Arabs	.14	.12	.30	.80	--	..	1.19	.81	2.09	3.65	--	..
Shluh	.46	.36	.36	.91	.35	--	5.04	3.62	3.21	4.76	2.72	--
Mean.....	*.32*	*.29*	*.29*	*.80*	*.24*	*.49*	*2.46*	*2.32*	*2.55*	*3.96*	*2.09*	*3.87*

TABLE 108. AVERAGE DIFFERENCES BETWEEN MOROCCAN GROUPS AND COMPARATIVE SERIES

Measurements Available for Comparison

	Kabyles	Shawia	Irak	Negroes	Spain[1]	Norway	Sweden
Stature	x	x	x	x	x	x	x
Span	x	x	.	x	x	x	
Acromion height	x	x	x	.	x	.	
Sitting height	x	x	x	.	x	x	
Biacromial	.	.	x	x	.	.	x
Biiliac	.	.	.	x	.	.	x
Chest breadth	.	.	x				
Total	4	4	5	4	4	3	3

Indices Available for Comparison

	Kabyles	Shawia	Irak	Negroes	Spain	Norway	Sweden
Relative span	x	x	.	x	x	x	
Relative shoulder height	x	x	x	.	x		
Relative sitting height	x	x	x	.	x	x	
Relative shoulder breadth	.	.	x	.	.	.	x
Total	3	3	3	1	3	2	1

[1] This is Aranzadi's group of Carceréños, the only Spanish series presenting a variety of such criteria.

Means of Eight Measurements of the Body

Average Differences in Centimeters

Number of Criteria	4 Kabyles	4 Shawia	5 Irak	4 Negroes	4 Spain	3 Norway	3 Sweden
Rif	2.59	1.76	1.70	2.94	3.34	4.37	2.10
Senhaja	2.95	2.52	2.51	3.38	2.54	5.20	2.42
Ghomara	3.67	4.33	2.33	4.45	1.18	7.15	3.14
Sheshawen	3.94	4.75	3.00	5.19	1.73	6.99	3.97
Arabs	2.55	3.32	2.76	3.03	2.99	4.77	2.19
Shluh	3.75	3.75	4.32	4.48	1.27	6.33	3.60
Mean	*3.24*	*3.40*	*2.77*	*3.91*	*2.18*	*5.80*	*2.90*

Difference equals X times P.E.

Rif	6.56	4.37	4.75	17.69	..	30.27	13.81
Senhaja	6.12	5.34	5.04	12.23	..	22.38	9.28
Ghomara	6.56	7.58	6.56	11.47	..	19.20	8.43
Sheshawen	6.54	7.51	5.74	9.09	..	18.06	8.72
Arabs	4.78	3.82	4.80	8.46	..	13.21	6.65
Shluh	7.69	9.26	8.61	14.37	..	33.64	16.54
Mean	*6.38*	*6.31*	*5.92*	*12.22*	..	*22.79*	*10.57*

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Order of Resemblance Compared with Order expected if Stature only Governing Factor

	Kabyles Ac.	Kabyles Ex.	Shawia Ac.	Shawia Ex.	Irak Ac.	Irak Ex.	Negroes Ac.	Negroes Ex.	Spain Ac.	Spain Ex.	Norway Ac.	Norway Ex.	Sweden Ac.	Sweden Ex.	No. of Differences
Rif	2	1	1	1	2	1	1	1	6	6	1	1	1	1	2
Senhaja	3	3	2	3	3	3	3	3	4	4	3	3	3	3	1
Ghomara	4	5	5	5	4	5	4	5	1	1	6	5	4	5	5
Sheshawen	6	6	6	6	6	6	6	6	3	3	5	6	6	6	1
Arabs	1	2	3	2	1	2	2	2	5	5	2	2	2	2	3
Shluh	5	4	4	4	5	4	5	4	2	2	4	4	5	4	4
Independent	4		2		4		2		0		2		2		

MEANS OF FOUR INDICES OF BODILY PROPORTIONS

Average Differences in Index Points

Number of Criteria	3 Kabyles	3 Shawia	3 Irak	3 Spain	2 Norway
Rif	1.36	.93	.95	.73	1.50
Senhaja	1.06	.95	.84	.77	1.60
Ghomara	1.57	1.17	1.01	.85	1.87
Sheshawen	1.55	1.02	.80	1.43	1.50
Arabs	1.38	.89	.86	.75	1.48
Shluh	1.70	1.19	1.22	1.07	1.84
Mean	*1.44*	*1.02*	*.95*	*.93*	*1.63*

Difference equals X times P.E.

Rif	6.44	4.05	3.97	..	18.51
Senhaja	5.95	3.70	3.19	..	9.75
Ghomara	6.46	4.62	3.90	..	6.25
Sheshawen	4.36	2.53	2.97	..	4.53
Arabs	5.87	1.82	3.10	..	8.21
Shluh	8.07	4.09	5.08	..	14.93
Mean	*6.19*	*3.47*	*3.70*	..	*10.36*

MEASUREMENTS AND INDICES OF THE BODY

When we compare the six Moroccan groups with one another in absolute measurements of bodily dimensions, we find two general groupings; the Rif, Senhaja, and Arabs are relatively large and mutually similar, whereas the other three or short groups are divided into the Shluh and Ghomara, which are similar, and Sheshawen, which appears aberrant. The Arabs, Senhaja, and Ghomara come nearest to a general type; Riffians, Shluh, and Sheshawen are increasingly distant from such a norm, in the order named. All are significantly different from all others in this subdivision of the anthropometric field.

In the foregoing comparison, stature plays a governing part; in order that it may not obscure the other dimensions recourse to the indices is necessary. In the bodily proportions thus revealed, we find the greatest similarity between the Rif and Senhaja, and the least between Sheshawen and the Shluh. The Senhaja show the greatest general affinity to all of the groups, and the Sheshawen people are by far the most distinctive or atypical. Although the smallest numerically, the Sheshawen group is significantly at variance from all others; while in these proportions the Riffians do not significantly differ from the Senhaja, Ghomara, and Arabs. Judging from the six groups at hand the Senhaja, Riffians, and Arabs represent most nearly the generalized Moroccan type; the Ghomara are somewhat aberrant or spe-

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cialized, and the Shluh more so; and the Sheshawen people distinctly show their alien or non-Moroccan origin.

In the comparative material we find almost every possible combination of the criteria employed in this study, hence it is impossible to compare most of the columns without reservations. Taking the measurements first, we find the Arabs, Riffians, and Senhaja most similar to the Kabyles, and the Sheshawen people, Shluh, and Ghomara most distant. The Riffians are much closer to the Shawia than to the Kabyles, and much more so than any other Moroccan group. The Sheshawen people are as usual most distant, with the Ghomara nearby, and the others intermediate. It is the Riffians again, and not the Arabs, who are closest to the Irak Bedawin, and the Shluh most distant. To the Negroes also the Riffians are closest, since again we are dealing with a moderately tall statured group. The Riffians are most distant from the Spaniards for the opposite reason, and nearest the Norwegians and Swedes.

In this form the means reflect little besides differences in stature. Since the modern increase in this dimension in Europe has exaggerated the difference of the Scandinavians and possibly on the other hand minimized that of the Spanish from the Riffians, it is desirable to eliminate stature and see if any proportionate differences remain. The table, showing the actual orders of resemblance and that expected if proportions were identical and differences governed by stature, will help elucidate this question. Only the Spaniards are in complete proportion with all Moroccan groups, in so far as order is concerned. Kabyles and Irak Bedawin are most distant, with Shawia, Negroes, Norwegians, and Swedes intermediate. Looking at the table horizontally, it is the Ghomara and Shluh who are least like the outside peoples in bodily proportions. The three representative tall groups, the Riffians, Senhaja, and Arabs, do not differ from the North European groups. Their differences are from African and Asiatic groups, while those of the Ghomara and Shluh are from North Europeans as well.

The foregoing statistical vagary justifies its existence when we find how few indices of bodily proportions are available for comparison. The Negroes and Swedes, with but one index each, must be omitted.

In comparison with the Kabyles, the Moroccan tall three are most similar, and the short three least so. The same is true with the Shawia, and with the Irak Bedawin, except that with these latter the Sheshawen group also falls into line, indeed, capturing first place, thus conceivably revealing a similarity inherited from Arabia and not shown in the actual measurements. The Riffians are closest to the Spaniards, and the Arabs, Riffians, and Sheshawen people to the Norwegians. On the whole a study of this material shows the same results as those obtained before; the Riffians and Arabs are the most similar to the European groups in general, with the Senhaja in the same class; these three likewise are nearest the Algerian mountain Berbers; Sheshawen is quite unlike anything except the Bedawin and Norwegians; and the Ghomara and Shluh are relatively the most individual and dissimilar of all. These similarities do not in every case represent differences of gross bulk and growth, since the Riffians are most similar to the Spaniards from whom they are most distant in actual measurements, and at the same time tied for second place in relationship to the Norwegians; representing the tallest and shortest comparative groups.

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TABLE 109. AVERAGE DIFFERENCES BETWEEN SIX MOROCCAN GROUPS

Means of Ten Measurements of the Head and Face

	Average Differences in Millimeters						*Difference equals X times P.E.*					
	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh
Rif	--	..	..	..	..	..	--	..	..	..	..	..
Senhaja...	1.28	--	..	..	..	..	4.15	--	..	..	..	..
Ghomara .	1.89	1.02	--	..	..	..	4.16	2.18	--	..	..	..
Sheshawen	1.10	1.35	1.54	--	..	..	1.80	2.12	2.10	--	..	..
Arabs	1.15	.79	1.24	1.20	--	..	2.86	1.83	2.28	1.62	--	..
Shluh	2.78	1.54	1.78	2.50	1.68	--	10.58	4.73	4.08	3.52	3.74	—
Mean.....	*1.64*	*1.20*	*1.49*	*1.54*	*1.21*	*2.06*	*4.71*	*3.00*	*2.96*	*2.33*	*2.47*	*5.33*

Means of Nine Indices of the Head and Face

	Average Differences in Index Points						*Difference equals X times P. E.*					
	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh	Rif	Senhaja	Ghomara	Sheshawen	Arabs	Shluh
Rif	--	..	..	..	..	..	--	..	..	..	..	..
Senhaja...	.37	--	..	..	..	..	1.29	--	..	..	..	..
Ghomara .	1.21	1.18	--	..	..	..	4.08	3.49	--	..	..	..
Sheshawen	1.32	1.09	.68	--	..	..	3.02	3.26	1.15	--	..	..
Arabs	.79	.77	1.21	1.02	--	..	2.73	2.26	3.00	2.16	--	..
Shluh	1.15	1.01	1.29	1.00	.36	--	5.34	3.94	3.59	2.24	1.43	—
Mean.....	*.97*	*.88*	*1.11*	*1.02*	*.83*	*.96*	*3.29*	*2.85*	*3.06*	*2.37*	*2.32*	*3.31*

TABLE 110. AVERAGE DIFFERENCES BETWEEN MOROCCAN GROUPS AND COMPARATIVE SERIES

Measurements Available for Comparison

	Kabyles	Shawia	Irak	Negroes	Spain[1]	Norway	Sweden
Head length	x	x	x	x	x	x	x
Head breadth	x	x	x	x	x	x	x
Head height	.	.	.	x	x	x	
Minimum frontal	.	.	x	.	x	.	x
Bizygomatic.....	x	x	x	x	x	x	x
Bigonial	x	x	x	x	x	x	
Total face height	x	x	x	x	x	x	x
Upper face height	x	x	x	x	x		
Nose height	x	x	x	x	x		
Nose breadth	x	x	x	x	x		
Total	8	8	9	9	10	6	5

Indices Available for Comparison

	Kabyles	Shawia	Irak	Negroes	Spain[1]	Norway	Sweden
Cephalic index.....	x	x	x	x	x	x	x
Length-height	.	.	.	x	x	x	
Breadth-height	.	.	.	x	x	x	
Fronto-parietal	.	.	x	.	x		
Cephalo-facial	x	x	x	x	x	x[2]	
Zygo-frontal.....	.	.	x	.	x	.	x
Facial	x	x	x	x	x	x	x
Upper facial	x	x	x	x	x	.	
Nasal	x	x	x	x	x	.	x
Total	5	5	7	7	9	5	4

[1] Oloriz's series, reworked by Williams.
[2] Mean without probable error.

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MEANS OF TEN MEASUREMENTS OF THE HEAD AND FACE

Average Differences in Millimeters

Number of Criteria	8 Kabyles	8 Shawia	9 Irak	9 Negroes	10 Spain	6 Norway	5 Sweden
Rif	2.81	1.90	3.84	4.64	2.52	2.34	1.89
Senhaja	2.30	1.45	3.95	3.59	1.92	2.61	2.61
Ghomara	2.30	1.27	3.72	3.60	1.55	2.44	2.72
Sheshawen ...	1.86	1.36	4.04	4.21	2.21	2.10	1.44
Arabs	2.64	1.99	3.49	3.80	2.02	2.79	1.98
Shluh	2.68	2.30	4.34	3.53	2.09	4.50	3.90
Mean	*2.43*	*1.71*	*3.90*	*3.90*	*2.05*	*2.80*	*2.42*

Difference equals X times P.E.

	Kabyles	Shawia	Irak	Negroes	Spain	Norway	Sweden
Rif	5.55	3.76	6.40	13.45	4.93	13.24	11.59
Senhaja	4.44	2.63	6.34	9.97	3.79	10.57	7.08
Ghomara	3.92	2.17	5.37	8.52	2.63	5.50	5.78
Sheshawen ...	2.39	1.86	4.59	6.91	2.90	2.84	2.05
Arabs	4.42	3.32	4.92	8.91	3.58	7.26	5.15
Shluh	5.23	3.40	6.95	9.77	3.35	16.10	3.65
Mean	*4.32*	*2.86*	*5.76*	*9.59*	*3.53*	*9.25*	*5.88*

MEANS OF NINE INDICES OF THE HEAD AND FACE

Average Differences in Index Points

Number of Criteria	5 Kabyles	5 Shawia	7 Irak	7 Negroes	9 Spain	5 Norway	4 Sweden
Rif	3.95	2.44	2.37	6.49	2.47	3.14	1.92
Senhaja	3.38	1.87	2.60	5.83	2.44	2.97	2.24
Ghomara	2.82	1.20	2.45	6.65	1.86	1.85	1.35
Sheshawen ...	2.87	1.15	2.81	6.42	2.10	1.81	1.96
Arabs	3.41	1.90	2.60	6.29	2.65	2.83	2.20
Shluh	3.18	1.48	2.87	6.28	2.66	2.63	2.47
Mean	*3.27*	*1.67*	*2.62*	*6.33*	*2.36*	*2.54*	*2.02*

Difference equals X times P.E.

	Kabyles	Shawia	Irak	Negroes	Spain	Norway [1]	Sweden
Rif	7.11	5.67	5.41	12.67	6.22	26.93	18.17
Senhaja	5.80	4.03	5.48	9.83	5.69	16.72	11.28
Ghomara	3.88	1.68	4.42	10.91	3.73	6.35	3.63
Sheshawen ...	3.72	1.60	4.03	8.32	3.18	5.22	3.65
Arabs	5.55	3.86	4.70	10.18	6.76	10.76	6.82
Shluh	5.86	3.56	5.66	12.53	6.09	11.98	11.42
Mean	*5.32*	*3.40*	*4.95*	*10.74*	*5.28*	*12.99*	*9.16*

[1] Only four indices were used in this column, since Bryn and Schreiner give no P.E. for the cephalo-facial index.

MEASUREMENTS AND INDICES OF THE HEAD AND FACE

In studying the average metrical differences of the six Moroccan groups we find relationships which lack statistically significant differentiation existing between the Riffians and Sheshawen; the Senhaja and Arabs; and Sheshawen and Arabs. It is notable that the Ghomara are left out of this North Moroccan roster. Looking at the differences themselves, the Shluh are most differentiated, and the Riffians next. From our knowledge of the individual measurements it is apparent that these differences are in opposite directions; those of the Riffians being toward larger, higher heads and longer faces and narrower noses.

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Differences between Sheshawen and Ghomara on the one hand and the other groups reflect the mesocephaly of the two former. Similarity between Riffian mean head measurements and those of Sheshawen indicates the large headedness of the Sheshawen people, especially in view of their low stature. The Arabs and Senhaja are again, as in bodily measurements and indices, intermediate Moroccans.

In the indices of the head and face the Ghomara step forward as the least harmonic element in the whole array. Just as they failed to fit in bodily proportions, they now distinguish themselves in cephalic and facial ratios. They appear just as alien as the Sheshawen people, whom we know to be intruders. Of the four who remain, the Riffians are the least generalized since they maintain the extreme of leptorrhiny and leptoprosopy, whereas the Arabs and Senhaja again exhibit their sociable character, and the Shluh form the other extreme of the normal picture.

The number of characters at hand for comparison with the seven outside groups is much more satisfactory than that which presented itself in the case of the bodily measurements and proportions. The most regrettable lacuna is that of nasal measurements from Scandinavia. Comparing the mean differences roughly, the closest similarities to all Moroccan groups lie with the Shawia and Spain, with Sweden and Kabylia intermediate, whereas the extremes are reached with the Asiatic Bedawin and Negroes. In other words, the Moroccans studied are nearest the peoples in Spain and Algeria, as is natural; and furthest from the nomadic Arabs and Negroes, from both of whom they are supposed to have assimilated much blood; their relationship with the Scandinavians, with whom they are not allied by geography or by tradition, is curiously much closer than that with either of the two latter.

In comparison with both Kabyles and Shawia, Riffians and Shluh are both relatively distant, representing the normal Moroccan extremes. Sheshawen and Ghomara, on the other hand, have affinities with these two groups, which Ghomara shares, in the case of the Kabyles, with the Senhaja. The only average difference in the entire comparative table which fails to attain a significant status is between Sheshawen and Shawia. This is likewise the greatest similarity of all in measurements alone.

In comparison with the Asiatic Bedawin, the Arabs unexpectedly but appropriately fall nearest, after Sheshawen, which extends its eastward connections off the edge of Africa. In comparison with the Negroes, the Riffians clearly show themselves to be the most distant, and the Shluh most similar. The normal Moroccan groups grade as might be expected in this event: Rif, Arabs, Senhaja, Shluh. The Ghomara do not seem any farther away than the Senhaja, but this is not, as will be seen, carried out in other features. The Sheshawen people differ from the other Moroccans in many ways, but not in a negroid direction.

When we come to the Spaniards the Riffians appear the most distant and the Ghomara the most similar, with others intermediate. Sheshawen tends to repudiate the country of its expulsion, in being most distant, next to the Riffians. Coming to the Scandinavians, we see that the Swedes are nearer the Moroccans than are the Norwegians, which will be seen to be true no matter what the criteria used. In comparison with both countries, Sheshawen appears most similar. Of the five purely Moroccan groups, the Riffians in both cases take the lead, and the Shluh the tail of the procession. The Riffians appear to be closer to the Scandinavians than to the Spaniards, but to determine this a special study must be made with identical criteria. The Arabs in both cases follow next after the Riffians.

In the compendium of indices, Ghomara and Sheshawen are the nearest Moroccan

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counterparts of the Kabyles and Shawia, since these two Algerian groups are also mesocephalous. Cranially and facially then our Moroccan aberrants find their counterparts in outlying North African quarters. The Riffians are the most distant from both Kabyles and Shawia since they preserve the purest leptoprosopic and leptorrhine strain among the true dolichocephals in Morocco. The Riffians, who have as little Arab blood as any group in Morocco, come closest to the Mesopotamian Arabs, while the Moroccan Arabs take an intermediate position and the Shluh are most distant. This relationship reflects the length and narrowness of face and nose among the true Arabs; in the case of the Riffians a survival rather than an accretion.

All groups are so distant from the Negroes in these indices that the negroid element in all cases is seen to be small. When one recalls the tremendous differences in the nasal index, that alone is enough to confirm this dissimilarity. The Ghomara and Riffians are most distant from the Negroes; the Ghomara more than the Riffians because of their greater difference in head form, which does not imply that the Riffian head form is the more negroid since neither of them are. Sheshawen comes third from the end, and the Senhaja closest to the Negroes, with the Shluh and Arabs in between.

When the comparison turns to Spaniards, Norwegians, and Swedes, we are dealing with originally dolichocephalic European peoples who have undergone an increase in the cephalic index since early, in some cases historic, times. The similarity of the Ghomara and Sheshawen groups to them in this criterion is enough to overshadow the more fundamental similarities of the other Moroccan groups, notably the Riffians, who in individual indices, especially those of the face and nose, are more similar, as they are in absolute size. If the mesocephaly of the Ghomara relates them to the Iberians and Scandinavians, they must have been identified with them in relatively late times, for which there is no historic basis. On the other hand the Riffians, in remaining dolichocephalic, are thus more similar than are the Ghomara to earlier Iberian and Scandinavian strains. The mesocephaly of the Ghomara must have some other origin than a recent European one. It is brought about by a relative shortness, rather than a relative width, of the head, and hence relates them to the mesocephalic Algerian and Canarian Berbers rather than directly with the Europeans. Hooton found that the most "Nordic" element in the Canary Islands was dolichocephalic and not the disharmonic "Guanche" type, to which the Ghomara, as well as some of the Algerians, seem related. Despite the obscuring tendency of these mesocephals, the most European type in Morocco, by and large, is the Riffian. It appears closer to the Swedes than to the Spaniards, and closer to the latter than to the Norwegians.

The similarity of Sheshawen to the European groups, on the other hand, can be explained by direct contact at least with Spaniards, since the Sheshawen people claim Granadan origin. Their similarity to the Scandinavians is difficult to explain.

Since, however, the Riffians are the chief subject of this study, and since they appear to be the most European of the purely dolichocephalic groups in Morocco, let us make a more detailed study of their relationships in Iberia and Scandinavia.

RIF, SPAIN, AND SWEDEN

In comparing the Riffian series of 530 with the Spanish series of less than 100, and the Swedish total of many thousands, differences in number invalidate the use of difference times probable error. It is practical only to compare actual differences in millimeters and

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index points. Judging by the nine criteria possessed in common by Riffians, Spanish, and Swedes, the Riffians are closer to Sweden than they are to Spain, and indeed Sweden is closer to Spain than Spain to the Rif, while Sweden and the Rif are closer than Sweden and Spain.

TABLE 111. COMPARISON IN HEAD MEASUREMENTS AND INDICES BETWEEN RIFFIANS AND SWEDES, NORWEGIANS, AND SPANIARDS

DIFFERENCES IN MILLIMETERS AND INDEX POINTS

Rif, Spain, and Sweden

	Rif-Spain	Rif-Sweden	Spain-Sweden
Head length	+3.24	+. 70	−2.54
Head breadth	−3.81	−4.65	− .84
Minimum frontal	+1.14	+1.61	+ .47
Bizygomatic	+2.88	0	−2.88
Total face height .	+3.83	−2.47	−6.30
Cephalic index ..	−3.24	−3.68	+ .56
Zygo-frontal	− .76	+1.38	+2.04
Facial index	+2.03	−1.74	−3.77
Nasal index	+3.71	− .86	+2.85
Mean	*2.74*	*1.90*	*2.47*

Rif, Spain, and Norway

	Rif-Spain	Rif-Norway	Spain-Norway
Head length	+3.24	+1.96	−1.28
Head breadth	−3.81	−6.34	−2.53
Head height	+2.85	+2.56	+ .29
Bizygomatic	+2.88	−1.25	−4.13
Bigonial	+4.40	+ .05	−4.35
Total face height .	+3.83	+2.47	−1.97
Cephalic index ..	−3.24	−3.96	+ .72
Length-height ...	+ .79	+1.03	+ .24
Breadth-height ..	+4.49	+5.32	+ .83
Cephalo-facial ...	+3.84	+3.07	− .77
Facial index	+2.03	+2.31	+ .28
Mean	*3.22*	*2.76*	*1.58*

RIF, SPAIN, AND NORWAY

Here eleven characters are available, and the same objection to the use of the probable error holds. Possibly because of the different criteria employed, Norway seems closer to Spain than was Sweden. The Rif is more like Norway than like Spain, but the two European groups are more like each other than either is like the Rif. It is indeed possible that the Riffians resemble the Swedes more than they do the Norwegians, but they resemble both more than they do the Spanish.

TABLE 112. COMPARISON BETWEEN RIF, VALLE, HÅLANDSDAL, AND SPAIN

DIFFERENCES IN MILLIMETERS AND INDEX POINTS

	Rif-V.	Rif-H.	Rif-Sp.	V.-Sp.	H.-Sp.	V.-H.
Head length	−3.41	− .76	+3.24	+6.65	+4.00	+2.65
Head breadth.....	−9.15	−8.10	−3.81	+5.32	+4.39	+1.03
Head height	+3.48	+5.56	+2.85	− .63	−2.71	+2.08
Minimum frontal	− .46	+2.05	+1.14	+1.60	− .91	+2.51
Bizygomatic	−6.88	−5.29	+2.88	+9.76	+8.17	+1.59
Bigonial	−3.12	−6.57	+4.40	+7.52	+10.97	−3.45
Total face height	−4.18	−2.36	+3.83	+8.01	+6.19	+1.82
Nose height	−2.59	−4.83	− .99	+1.60	+3.84	−2.24
Nose breadth	−1.54	− .97	+1.61	+3.15	+2.58	+ .57
Cephalic index	−3.33	−3.79	−3.24	− .09	− .55	− .46
Fronto-parietal	+3.91	+5.03	+2.15	−1.76	−2.88	+1.12
Cephalo-facial	+ .65	+ .90	+3.84	+3.19	+2.94	+ .15
Zygo-frontal	+3.94	+4.50	− .76	−4.70	−5.35	+ .65
Facial index	+1.46	+1.98	+2.03	+ .57	+ .05	+ .52
Nasal index	+ .58	+2.58	+3.71	+3.13	+1.13	+ .52
Mean	*3.24*	*3.69*	*2.70*	*3.85*	*3.78*	*1.42*

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DIFFERENCES IN VALUE OF XP.E.[1]

	Rif-V.	Rif-H.	Rif-Sp.	V.-Sp.	H.-Sp.	V.-H.
Head length	8.32	1.43	4.91	9.11	4.94	4.27
Head breadth	28.59	20.50	9.07	11.08	8.28	2.19
Head height	11.21	11.83	4.26	.90	3.47	4.08
Minimum frontal	1.64	5.69	2.43	3.14	1.62	6.12
Bixygomatic	22.20	11.76	5.88	18.07	12.97	3.18
Bigonial	7.43	12.06	8.63	12.33	15.23	5.31
Total face height	9.09	3.63	4.85	9.31	6.32	2.46
Nose height	10.36	15.58	2.36	3.48	7.84	6.22
Nose breadth	8.56	3.88	5.97	15.00	7.59	2.11
Cephalic index	19.58	17.21	12.00	.30	1.67	1.77
Fronto-parietal index	23.00	27.94	5.51	4.40	7.02	5.33
Cephalo-facial index	2.95	3.60	12.00	8.62	7.54	.50
Zygo-frontal index	17.91	19.12	1.83	12.05	13.37	2.32
Facial index	4.06	4.31	3.44	.86	.07	.96
Nasal index	1.53	5.06	5.80	4.54	1.45	.90
Mean	*11.76*	*10.91*	*5.64*	*7.54*	*6.62*	*3.18*

[1] In the Valle and Hålandsdal series, the probable error of the mean has been calculated and used, instead of the standard error, which is given in the original publication.

	Position of Rif in Regard to		*Rif is Closer to*	
	V. and Sp.	H. and Sp.	V. or Sp.	H. or Sp
Head length	between	between	S	H
Head breadth	below	below	S	S
Head height	above	above	S	S
Minimum frontal	between	above	V	S
Bixygomatic	between	between	S	S
Bigonial	between	between	V	S
Total face height	between	between	S	H
Nose height	below	below	S	S
Nose breadth	between	between	V	H
Cephalic index	below	below	S	S
Fronto-parietal	above	above	S	S
Cephalo-facial	above	above	V	H
Zygo-frontal	between	between	S	S
Facial index	above	above	V	H
Nasal index	above	above	V	H
Between	7	6	S = 9	S = 9
Above	5	6	V = 6	H = 6
Below	3	3		

(Five of the above and below cases depend upon increased brachycephalization of Europeans.)

COMPARISON WITH VALLE, HÅLANDSDAL, AND SPAIN

In the foregoing tables a comparison is made between Riffians, Spaniards, and two Norwegian groups, chosen because they present more criteria than any other available Scandinavian material, and not because they seem the most Nordic. They seem, as a matter of fact, to possess a Dinaric tendency. In the bulk of measurements and indices the Riffians occupy a position intermediate between the two, slightly nearer the Spaniards. The value of this individual study lies in that it supplements the more comparable but less detailed aggregations of Lundborg and Linders, and Bryn and Schreiner.

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TABLE 113. CEPHALIC MODULES OF RIFFIANS, SPANIARDS, AND NORWEGIANS

	Cephalic Module	Compared to Rif
Spain	155.76	− .76
Rif	156.52	
Opland	156.73	+ .21
Norway (total)	157.12	+ .60
Eidfjord	157.58	+1.02
Hålandsdal	157.62	+1.06
Valle	159.54	+3.02

CEPHALIC MODULES

The cephalic modules given above have been calculated from the means of the three measurements involved. The Riffians are intermediate in absolute head size between the Spaniards and the various Norwegian series. The group closest to the Riffians is Opland, the most dolichocephalic province of Norway; and the Norwegian total mean is nearer the Riffians than is that of the Spaniards. The three Norwegian groups measured by Mme. Schreiner are almost as foreign to Opland in head size as they are to the Rif.

Round heads have larger cubic capacities than have long heads, other factors equal. If both Spaniards and Norwegians were originally more dolichocephalic than they are today, approaching the Riffians in cephalic index, then in absolute size the Spaniards were more distant from the Riffians and the Norwegians closer to them than the present data indicate. The differences due to the modern increase of stature in Europeans, in the correlation of stature to head dimensions, would likewise have moved the Spanish figure towards and that of the Norwegians away from the Riffian cephalic module.

SUMMARY

Our comparisons of the Riffians with Spaniards and Scandinavians indicate that in head and face form the Riffians resemble both of these European groups, especially the Scandinavians. Their relationship with the Spaniards is closer than with the Norwegians, but less close than with the Swedes. Resemblances are so marked that when the Alpine and East Baltic elements in Scandinavia are discounted a strong Nordic tendency is found in the Riffians as a whole. Certain features indicate a Mediterranean element as well.

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CHAPTER XXI

METRICAL ANALYSIS OF RIFFIAN AND SENHAJAN TRIBES

In the individual tables of metrical criteria, tribal constants for the Riffian and Senhajan series were given in the cases of ten measurements and eight indices; stature, head length, head breadth, head height, minimum frontal, bizygomatic, bigonial, total face height, nose height, nose breadth; and relative shoulder height, relative shoulder breadth, relative sitting height, cephalic index, length-height index, breadth-height index, facial index, and nasal index. On the basis of these measurements and indices the tribal distribution of racial tendencies may be observed.

In using these tribal samples, several objections to a detailed statistical analysis appear. Chief of these are the differences in size between the samples, some of which are dangerously small, and differences in ages of the subjects.

In regard to differences in size, it is generally found that samples too small for statistical consideration yield abnormally high constants of variation. Hence the means of the coefficients of variation in ten measurements and in eight indices have been calculated for each tribal group. The accompanying list shows little difference between the samples in this respect. If the size of the mean coefficient of variation were to decrease as the size of the tribal sample increased, one would obtain a significant negative coefficient of correlation

TABLE 114. MEANS OF COEFFICIENTS OF VARIATION

	No.	10 Measurements	8 Indices		No.	10 Measurements	8 Indices
Kebdana	14	4.59	4.59	Amart	22	5.12	5.29
Mazuza	30	4.35	4.64	Targuist	18	5.26	4.98
Galiya	55	4.72	4.60	Bokoya	24	4.46	4.23
Nomads	29	4.71	4.31	Maritimes	22	5.36	4.79
Said	30	5.14	5.02	Zarket	25	5.09	4.72
Ulishk	53	4.62	4.57	Bu Nsar	25	4.81	4.64
Temsaman	49	5.13	4.41	Hamid	18	4.25	4.61
Tuzin	38	4.60	4.62	Taghzuth	59	4.87	5.13
Gzennaya	55	4.92	4.74	Ktama	22	4.69	4.66
Urriaghel	64	4.59	4.89	Ar. Sen.	47	4.66	4.82

TABLE 115. SUB-ADULTS IN THE TRIBAL SAMPLES

Numbers and Proportions

	No.	Per cent		No.	Per cent
Kebdana	1	7.15	Amart	3	13.64
Mazuza	3	10.00	Targuist	4	22.22
Galiya	3	5.46	Bokoya	5	20.83
Nomads	5	17.24	Maritimes	5	22.75
Said	1	3.33	Zarket	2	8.00
Ulishk	0	0	Bu Nsar	4	16.00
Temsaman	5	10.20	Hamid	5	27.78
Tuzin	2	5.26	Taghzuth	6	10.17
Gzennaya	14	25.45	Ktama	3	13.64
Urriaghel	18	28.12	Ar. Sen.	3	6.39

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Effect upon the Measurements and Indices: Beni Urriaghel

	M. of 64	M. of 46	D.	XP.E.
Stature	166.59 ± .48	167.63 ± .53	+1.04	1.46
Head length	191.69 ± .45	192.17 ± .52	+ .48	.70
Head breadth	144.22 ± .35	144.07 ± .34	− .15	.10
Head height	128.42 ± .49	128.74 ± .56	+ .32	.43
Minimum frontal	103.75 ± .36	103.52 ± .45	− .23	.40
Bizygomatic	133.30 ± .47	133.91 ± .45	+ .61	1.07
Bigonial	104.19 ± .53	104.07 ± .59	− .12	.16
Total face height	121.86 ± .56	122.56 ± .65	+ .70	.95
Nose height	54.03 ± .28	54.33 ± .34	+ .30	.65
Nose breadth	33.91 ± .19	33.98 ± .24	+ .07	.23
Relative shoulder height	81.75 ± .10	81.89 ± .12	+ .14	.87
Relative shoulder breadth	22.25 ± .09	22.28 ± .12	+ .03	.19
Relative sitting height	51.25 ± .14	51.29 ± .17	+ .04	.18
Cephalic index	75.27 ± .24	75.04 ± .27	− .23	.23
Length height index	67.05 ± .24	66.93 ± .27	− .12	.33
Breadth height index	89.14 ± .40	88.85 ± .44	− .29	.34
Facial index	91.47 ± .49	91.61 ± .54	+ .14	.19
Nasal index	62.97 ± .53	62.78 ± .66	− .19	.22

TABLE 116. SENILES IN THE TRIBAL SAMPLES

Numbers and Proportions

Tribe	No.	Per cent	Tribe	No.	Per cent
1. Hamid	4	22.22	10. Zarket	1	4.00
2. Targuist	2	11.10	11. Ulishk	1	3.77
3. Amart	2	9.10	12. Gzennaya	2	3.64
4. Temsaman	4	8.16	13. Nomads	1	3.45
5. Ar. Sen.	3	6.26	14. Taghzuth	2	3.39
6. Tusin	2	5.27	15. Mazuza	1	3.33
7. Urriaghel	3	4.69	16–20. Kebdana, Galiya,		
8. Maritimes	1	4.55	Said, Bokoya, Bu Nsar.	0	0
9. Ktama	1	4.54			

Effect upon the Measurements and Indices: Beni Hamid

	M. of 18	M. of 14	D.	XP.E.
Stature	170.34 ± .53	170.07 ± .59	−.27	.34
Head length	192.44 ± .70	192.64 ± .69	+.20	.20
Head breadth	144.56 ± .47	144.50 ± .58	−.06	.08
Head height	127.28 ± .64	127.86 ± .74	+.58	.59
Minimum frontal	105.50 ± .69	104.64 ± .73	−.86	.86
Bizygomatic	134.50 ± .60	133.79 ± .69	−.71	.77
Bigonial	104.06 ± .80	104.29 ± .82	+.23	.17
Total face height	123.33 ± .71	122.93 ± .66	−.40	.43
Nose height	54.94 ± .67	54.31 ± .74	−.63	.63
Nose breadth	34.47 ± .58	35.08 ± .61	+.61	.73
Relative shoulder height	82.06 ± .24	82.21 ± .30	+.15	.28
Relative shoulder breadth	22.06 ± .18	22.30 ± .19	+.24	.85
Relative sitting height	51.24 ± .27	51.46 ± .30	+.22	.55
Cephalic index	75.13 ± .78	75.07 ± .46	−.06	.07
Length-height index	66.22 ± .28	66.43 ± .34	+.21	.36
Breadth-height index	88.00 ± .46	88.43 ± .56	+.43	.59
Facial index	91.78 ± .50	91.93 ± .55	+.15	.20
Nasal index	63.71 ± 1.46	64.32 ± 1.83	+.61	.26

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between them. Actually, the coefficient of correlation between the sizes of the samples and their mean coefficients of variation is, in the case of the measurements, $+.06 \pm .15$, and in the case of the indices, $+.13 \pm .15$. Neither coefficient is negative, neither attains twice, or even once, the size of its probable error, and hence neither can be considered of any significance. As far as variability is concerned, therefore, the samples appear to be comparable. Indeed, in observing the criteria individually, no means radically different from the whole were found; it is probable that these samples are as representative as any of their sizes can be expected to be.

The matter of age is again difficult. The Riffians do not, as a rule, know their ages, hence it was the observer's task to estimate them, on the basis of tooth eruption and wear, beard development, and general appearance. Up to the age of twenty-five, most of the estimates were probably right within two years. Between twenty-five and senility, I am less confident. Senile individuals were simply classed as such.

If we are to determine the influence of the sub-adult class on our tribal seriations we must establish a standard, or dividing line, to separate sub-adults from adults. Let us arbitrarily choose the twenty-first year, considering all twenty or under sub-adult, and all twenty-one or over adult. In Table 115 a list of the number and percentage of sub-adults in each tribal sample is given. There is a considerable variation, from zero in Beni Ulishk to 28.12 per cent in Beni Urriaghel, which possesses not only the largest percentage, but the largest number as well, since it is our largest tribal grouping. If the number of sub-adults in a series is sufficient to qualify the whole, the means of the total series will differ significantly from the mean of the same series, with these sub-adults removed. In the Beni Urriaghel sample no significant differences are found in any of the criteria employed. If this is true of the Beni Urriaghel it may safely be considered true of the other tribes in which smaller sub-adult percentages were found.

If we examine the table closely, we see that in ten measurements, the selected adult series exceeds the total in but seven, while in three the total is greatest. If the selection had been by chance rather than by age, the result would ideally have been for five of each series to exceed. If age were a significant factor in this group one would reasonably expect all ten measurements to be greater in the selected adult series of 46. The presence of three negative differences indicates that the chance element is at least as great as that of age in qualifying the selection of individuals.

By the same methods the effect of the seniles on the means may be determined. Beni Hamid has over twice as many of these as any other group, and in Beni Hamid no significant differences between the columns can be found. Indeed, in six out of ten measurements, the total exceeds the group from which the seniles have been excluded.

These results definitely indicate that for all practical purposes the individuals under and over the period of normal adult development have not influenced our tribal series enough to render the latter incomparable. Differences between the tribes are real ones, yet with the numbers such as they are it will be better to use only the broadest of techniques in carrying out a regional analysis, thus to determine general tendencies of a cumulative nature, rather than delicate variations, for which larger groups are needed.

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TABLE 117. MEAN OF MEANS IN EACH MEASUREMENT AND INDEX

	M.	σ	V.
1. Stature	168.45 ± .59	3.95 ± .93	2.34 ± .25
2. Head length	194.10 ± .30	2.00 ± .22	1.03 ± .11
3. Head breadth	145.30 ± .23	1.56 ± .17	1.07 ± .11
4. Head height	129.00 ± .22	1.44 ± .16	1.11 ± .12
5. Minimum frontal	106.15 ± .20	1.35 ± .15	1.27 ± .14
6. Bizygomatic	135.65 ± .29	1.92 ± .21	1.42 ± .15
7. Bigonial	105.05 ± .33	2.18 ± .24	2.08 ± .22
8. Total face height	123.80 ± .39	2.62 ± .29	2.12 ± .23
9. Nose length	54.55 ± .17	1.12 ± .12	2.05 ± .22
10. Nose breadth	34.50 ± .09	.59 ± .06	1.71 ± .18
11. Relative shoulder height	81.95 ± .06	.20 ± .02	.24 ± .03
12. Relative shoulder breadth	22.35 ± .07	.45 ± .05	2.01 ± .21
13. Relative sitting height	50.94 ± .05	.32 ± .03	.63 ± .07
14. Cephalic index	75.05 ± .10	.66 ± .07	.88 ± .09
15. Length-height index	66.45 ± .10	.67 ± .07	1.01 ± .11
16. Breadth-height index	88.80 ± .19	1.25 ± .14	1.41 ± .15
17. Facial index	91.20 ± .26	1.72 ± .19	1.89 ± .20
18. Nasal index	63.55 ± .18	1.20 ± .13	1.89 ± .20

TRIBAL SCORES COMPUTED ON THE BASIS OF TEN MEASUREMENTS AND OF EIGHT INDICES

Score based on ten means

0	Kebdana, Mazuza, Said, Ulishk
2	Nomads, Maritimes
3	Galiya, Tuxin
4	Temsaman, Bu Nsar
7	Taghzuth
8	Bokoya, Ktama
9	Gzennaya, Amart, Targuist, Hamid, Ar. Sen.
10	Urriaghel, Zarket

Score based on eight indices

1	Hamid, Ar. Sen.
2	Mazuza
3	Kebdana, Galiya, Nomads, Said, Temsaman, Ulishk
4	Maritimes
5	Tuxin, Urriaghel, Amart, Targuist, Bokoya, Bu Nsar, Taghzuth
6	Gzennaya, Zarket, Ktama

ANALYSIS BY THE MEAN OF MEANS METHOD

Regional variations of a broad nature may be determined by comparing the tribal means in each measurement with a mean of means, a constant calculated from the tribal means themselves, giving each tribal grouping the value of one unit, and thus eliminating the weighting which results from differences in the sizes of samples.

Table 117 gives the means, standard deviations, and coefficients of variation for each criterion used. A glance at the third column shows which of the measurements and indices vary tribally to the greatest extent. Stature shows the greatest variety, as is to be expected. The measurements and indices of the head show very little. In the face, the bigonial, total face height, and nose length show a considerable disparity between regions. The broad, heavy jaw is an eastern Riffian trait, as are excessive length of face and nose. Narrowest jaws and shortest face and nose lengths are Senhajan and Ghomaran; the Central Rif is

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more or less intermediate. The relative shoulder breadth also varies to a considerable extent, with broadest proportions eastern in location. In the facial and nasal indices, the Central Riffians run narrowest, especially in the latter of the two criteria.

In general, greatest dimensions are found in the east, and smallest ones in the west, with the Central Riffian tribes running moderately small. With this in mind, let us give each tribal group a score for the number of measurements out of ten which fall below the mean of means. These scores are given in Table 117. Measurements and indices have been used separately; in the case of the indices, positive values of the length-height and breadth-height indices of the head have been made negative, and vice versa, since there is a central tendency towards relatively high heads; and indices, being expressions of relationships and not indications of actual size, are not subject to the limitations of measurements but can in this case be more significantly employed by conscious and consistent arrangement.

In the measurements the tribes of Beni Urriaghel and Zarket have the highest scores. In general the area of highest Central Riffian culture is covered by the concentration of a small type. Broader noses and other features in disharmony with a recessive dolicho-hypsi-leptorrhine European group lower the scores of the Senhaja.

In the indices the Central Riffian region still forms the nucleus, but by the elimination of absolute size differences the outlying Senhaja fall far in the rear, and the northerly Senhaja, from Ktama through Zarket, link to the Riffians. Similarly the eastern Riffians draw closer to those in the center than they did by measurements, showing that if the Central Riffians are closer to the Senhaja in measurements, they are on the whole closer to the other Riffians in proportions.

Judging from this analysis, crude as it is, it may readily be seen that the Central Riffian area is characterized by a smaller type than the eastern Rif, one which is at the same time higher headed and more leptorrhine. This type runs over into the neighboring Senhajan tribes, more in size than in proportions.

ANALYSIS BY TRIBAL RANKINGS

Another method of tribal analysis is to assign each tribe a definite rank in each measurement and index, depending on the relative position of its mean in each criterion. Take, for example, stature. Beni Tuzin, which is the tallest, is given rank 1, Beni Said 2, Mazuza 3, Kebdana 4, and so on down to Ktama, which is given rank 20.

In Table 118 are shown the results of correlating each criterion with all of the others, on the basis of rank.[1] Thus in each correlation sheet the columns are numbered from 1 to 20, and each tribe is put in the square in which its two ranks cross. All coefficients of correlation greater than twice their probable errors have been listed. By means of this table it is possible further to study the manner in which the tribes differ, and hence the variations in type.

Most of the measurements inter-correlate; in other words, size is the most important factor. All of the measurements are positively correlated with stature. All but two of the indices show no correlation, further supporting the evidence that shape and proportions are uniform. The two variants are relative shoulder breadth and the nasal index, indicating that the taller type is the broader shouldered proportionately, and the most leptorrhine.

[1] The special formula for correlating rankings was used. See Truman L. Kelley, *Statistical Method*, pp. 191–195.

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TABLE 118. COEFFICIENTS OF CORRELATION GREATER THAN 2 TIMES P.E. (Rankings)

	Stature	Head Length	Head Breadth	Head Height	Minimum Frontal	Bizygomatic	Bigonial	Total Face Height	Nose Height
Stature	.. ..	+.73 ± .07	+.63 ± .09	+.36 ± .13	+.64 ± .09	+.50 ± .11	+.50 ± .11	+.62 ± .09	+.78 ± .06
Head length	+.73 ± .07	.. ..	+.65 ± .09	+.35 ± .13	+.77 ± .06	+.76 ± .06	+.54 ± .11	+.77 ± .06	+.64 ± .09
Head breadth	+.63 ± .09	+.65 ± .09	.. ..	+.35 ± .13	+.82 ± .05	+.65 ± .09	+.49 ± .11	+.54 ± .11	+.65 ± .09
Head height	+.36 ± .13	+.35 ± .13	+.35 ± .13	.. ..	+.43 ± .12	.. ..	+.55 ± .10	.. ..	+.32 ± .14
Minimum frontal	+.64 ± .09	+.77 ± .06	+.82 ± .05	+.43 ± .12	.. ..	+.76 ± .06	+.54 ± .11	+.39 ± .13	+.57 ± .10
Bizygomatic	+.50 ± .11	+.76 ± .06	+.65 ± .09	.. ..	+.76 ± .06	.. ..	+.60 ± .10	+.71 ± .08	+.49 ± .11
Bigonial	+.50 ± .11	+.54 ± .11	+.70 ± .08	+.55 ± .14	+.55 ± .11	+.60 ± .10	.. ..	+.57 ± .10	+.48 ± .12
Total face height	+.62 ± .09	+.77 ± .06	+.54 ± .11	.. ..	+.39 ± .13	+.71 ± .08	+.57 ± .10	.. ..	+.79 ± .06
Nose height	+.78 ± .06	+.64 ± .09	+.65 ± .09	+.32 ± .14	+.57 ± .10	+.49 ± .11	+.48 ± .12	+.79 ± .06	
Nose breadth	+.49 ± .11	+.72 ± .07	+.70 ± .08	+.41 ± .12	+.71 ± .08	+.45 ± .12	+.34 ± .13	.. ..	+.78 ± .06
Relative shoulder height	.. ..	+.28 ± .14	.. ..	.. ..	.. ..	+.33 ± .14	.. ..	+.70 ± .08	
Relative shoulder breadth	+.49 ± .11	+.57 ± .10	+.71 ± .08	.. ..	+.76 ± .06	+.56 ± .10	+.57 ± .10	.. ..	+.39 ± .13
Relative sitting height	.. ..	+.30 ± .14	+.75 ± .07						
Cephalic index	.. ..	.. ..	+.48 ± .12						
Length-height index	.. ..	.. ..	.. ..	+.67 ± .08	.. ..	−.48 ± .12	.. ..	−.40 ± .13	+.30 ± .14
Breadth-height index	.. ..	.. ..	−.48 ± .12	+.57 ± .10	.. ..	.. ..	.. ..	−.31 ± .14	−.31 ± .14
Facial index	.. ..	+.39 ± .13	.. ..	.. ..	.. ..	.. ..	.. ..	+.47 ± .12	+.32 ± .14
Nasal index	−.31 ± .14	−.30 ± .14	.. ..	.. ..	.. ..	.. ..	.. ..	−.37 ± .13	−.75 ± .07

	Nose Breadth	Relative Shoulder Height	Relative Shoulder Breadth	Relative Sitting Height	Cephalic Index	Length-height Index	Breadth-height Index	Facial Index	Nasal Index
Stature	+.49 ± .11	.. ..	+.49 ± .11	.. ..	.. ..	.. ..	.. ..	.. ..	−.31 ± .14
Head length	+.72 ± .07	+.28 ± .14	+.57 ± .10	+.30 ± .14	.. ..	.. ..	.. ..	+.39 ± .13	−.30 ± .14
Head breadth	+.70 ± .08	.. ..	+.71 ± .08	+.75 ± .07	+.48 ± .12	.. ..	−.48 ± .12		
Head height	+.41 ± .12	.. ..	.. ..	.. ..	.. ..	+.67 ± .08	+.57 ± .10		
Minimum frontal	+.71 ± .08	.. ..	+.76 ± .06						
Bizygomatic	+.45 ± .12	+.33 ± .14	+.56 ± .10	.. ..	.. ..	−.48 ± .12			
Bigonial	+.34 ± .13	.. ..	+.57 ± .10						
Total face height	.. ..	+.70 ± .08	.. ..	.. ..	.. ..	−.40 ± .13	−.31 ± .14	+.47 ± .12	−.37 ± .13
Nose height	+.78 ± .06	.. ..	+.39 ± .13	.. ..	.. ..	−.30 ± .14	−.31 ± .14	+.32 ± .14	−.75 ± .07
Nose breadth	.. ..	.. ..	+.46 ± .12	.. ..	+.41 ± .12	.. ..	−.33 ± .14		
Relative shoulder height	.. ..	.. ..	.. ..	.. ..	.. ..	−.48 ± .12			
Relative shoulder breadth	+.46 ± .12								
Relative sitting height	.. ..	.. ..	.. ..	.. ..	.+53 ± .11	.. ..	.. ..	+.39 ± .13	−.33 ± .14
Cephalic index	+.41 ± .12	.. ..	.. ..	+.53 ± .11	.. ..	.. ..	−.65 ± .09	−.37 ± .13	
Length-height index	.. ..	−.48 ± .12	.. ..	.. ..	.. ..	.. ..	+.62 ± .09		
Breadth-height index	−.33 ± .14	.. ..	.. ..	.. ..	+.63 ± .09	+.62 ± .09			
Facial index	.. ..	.. ..	.. ..	+.39 ± .13	−.37 ± .13	.. ..	.. ..	.. ..	−.40 ± .13
Nasal index	.. ..	.. ..	.. ..	−.33 ± .14	.. ..	.. ..	.. ..	−.40 ± .13	

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The negative correlation between stature and the nasal index is greatly bolstered by the high indices of the short Senhajan tribes.

In the measurements of the head and face, there are no significant negative correlations. Most of the measurements show definite relationships to all of the others. The only exceptions are with head height and bizygomatic, head height and total face height, total face height and nose breadth. In other words, head height, bizygomatic, total face height, and nose breadth are the only measurements not entirely in accord with the whole.

Let us examine the indices. If the regional variations depended upon size alone, we should find no significant correlations between indices and measurements at all, and none between pairs of indices. The relatively high shoulder goes with a long, low head, and broad and long face. The relatively broad shouldered groups are also the tallest, with largest heads in length and breadth dimensions. In the three breadth dimensions of the face they exceed, and have large, both long and broad, noses. The tribes which show the longest trunks in proportion to leg length are the longest and broadest headed, relatively least dolichocephalic, relatively broadest faced, and narrowest nosed. The cephalic index increases tribally with the head breadth; in other words, the less dolichocephalic tribes are no shorter headed than the others. They are broader nosed, relatively shorter legged, and relatively broader faced. They do not show an increase in head length to go with the greater breadth.

TABLE 119. TRIBAL RANKS IN TEN MEASUREMENTS

	M.	σ		M.	σ
Kebdana	4.10	2.88	Amart	13.20	3.37
Mazuza	3.40	1.53	Targuist	14.90	4.89
Galiya	9.60	2.75	Bokoya	14.50	4.06
Nomads	7.70	4.15	Maritimes	8.60	3.92
Said	2.01	1.42	Zarket	14.40	3.37
Ulishk	3.90	2.43	Bu Nsar	9.50	3.90
Temsaman	8.80	4.89	Hamid	12.80	3.34
Tuzin	7.90	5.17	Taghzuth	12.10	4.18
Gzennaya	13.00	2.90	Ktama	16.80	4.96
Urriaghel	16.50	2.58	Ar. Sen	14.80	2.86

The tribes which are high headed in proportion to head length owe this excess to absolutely higher heads, shorter, narrower faces, and shorter noses than the others. Those which show high-headedness in relation to breadth are both absolutely and relatively narrower headed, shorter faced, and smaller nosed in both dimensions. The tribes which are relatively longest faced are absolutely longest faced as well. They also appear long trunked, and low in cephalic and nasal indices. The most leptorrhine are tall, absolutely long headed, long faced, and long nosed; long trunked and relatively narrow faced.

From these correlations it appears that, in general, variations in size between tribes do not imply differences in proportions. In particular, however, high heads go with a smaller type, low heads with a larger; broad heads with broad dimensions of the face while the length dimensions remain relatively short. At least three types are indicated: the first, tall, long faced, relatively low headed, and long nosed; the second, tall, thick-set, broad faced, large nosed, and slightly less dolichocephalic than the others; the third, short, relatively high headed, dolichocephalic, small faced, and small nosed. These three must be considered as variations from or intrusions into a central norm; they do not eliminate the possibility of a medium sized, dolichocephalic, leptoprosopic, and leptorrhine type forming the groundwork of the whole.

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REGIONAL VARIABILITY IN RANKING

Having already determined the measurements and indices which, throughout differences in size, do not follow a normal pattern of form and proportion, let us next discover in what tribes differences from the norm in this respect are most marked. The mean ranking of each tribe in ten measurements and the standard deviation of these means show relative harmony between the measurements. The means themselves merely reflect absolute size, which has already been discussed under the mean of means analysis. The standard deviations show regional variations of some significance. Taking all tribes with a variability greater than four rank places as relatively variable, we find three regions of upset, or of disharmony from the whole. These are: the Nomadic invasion route, comprising the Nomads, Beni Tuzin, and Temsaman; a northwestern sector, including Bokoya and Targuist; and the typically Senhajan tribes of Taghzuth and Ktama. Of the remaining tribes, the Maritimes and Beni Bu Nsar are most variable, and thus tie on to the northwestern sector in the first case, and to the Senhajan region of variability in the latter.

Two areas are left with comparative harmony; the very center of the Rif, and the eastern region extending from Kebdana to Beni Said and Beni Ulishk, minus the Nomads. We have seen these to be the primary and secondary centers of blondism, while at the same time the regions of greatest contrast in absolute size. It cannot be argued that variability in rank depends on intermediate size, since the small Senhajans and the tallest tribe of all, Beni Tuzin, are ranked among the most variable.

TABLE 120. MEAN TRIBAL RANKS ON BASIS OF THREE CRITERIA AND THEIR CORRELATES

	Relative Shoulder Height	Relative Shoulder Breadth	Breadth-Height Index		Relative Shoulder Height	Relative Shoulder Breadth	Breadth-Height Index
Kebdana	6.00	5.56	9.75	Amart	13.60	14.00	9.25
Mazuza	7.80	3.44	14.88	Targuist	7.80	15.56	9.75
Galiya	6.40	8.56	13.25	Bokoya	18.60	15.00	4.50
Nomads	8.80	6.78	16.25	Maritimes	8.00	8.78	10.88
Said	4.60	2.11	13.38	Zarket	11.60	15.00	8.12
Ulishk	4.40	3.56	14.12	Bu Nsar	9.60	10.33	11.12
Temsaman	10.20	7.67	17.00	Hamid	12.40	12.89	12.38
Tuzin	11.00	7.22	6.25	Taghzuth	14.40	12.56	8.75
Gzennaya	10.40	13.33	8.25	Ktama	18.60	17.89	3.62
Urriaghel	18.00	16.33	7.50	Ar. Sen.	11.80	13.44	11.00

REGIONAL VARIABILITY IN TYPE

In order to determine local variations in type mean rankings have been calculated for three different indices, seemingly of significant variability, each with its correlates.

Relative shoulder height is positively correlated with head length, bizygomatic, total face height, and negatively with the length height index. This high shouldered, long and relatively low headed, large faced type is centered in the east, in Beni Said and Beni Ulishk, in Kebdana and Galiya, and is also prominent in Targuist and among the Maritimes. In Targuist it appears prominent despite the small sizes of the individual means. It represents in Targuist and the Maritimes, in that it varies greatly among them from the Bokoya, Beni Urriaghel, and Beni Amart rankings, a difference of type in this region not indicated in the

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means based upon absolute size, and shows an intrusive type similar to that in the east. The chief value of this seriation is that it divides the western and central tribes into a nuclear element and an intrusive one morphologically similar to others in the east.

Relative shoulder breadth is positively correlated with stature, head length, head breadth, minimum frontal, bizygomatic, bigonial, nose height, and nose breadth. In other words, the type thus isolated is tall, broad shouldered, large (but not high) headed, broad faced, and large nosed. It is centered in Beni Tuzin, with Beni Ulishk and Mazuza strongly represented. Galiya forms a slight island in it, and the Nomads are not situated within its greatest concentration. The tribes in which it is least represented are the Central Riffian group, Zarket, and Ktama. This burly, thick-set type is dominant in the east; it is responsible for most of the large dimensions found in that area.

The breadth-height index is negatively correlated with head breadth, total face height, nose height, nose breadth, and the cephalic index. It is positively correlated with head height and the length-height index. The type thus portrayed is both relatively and absolutely narrow and high headed; it is short faced and small nosed. This is the most interesting type of all to trace since it is the most difficult to isolate. It is concentrated in Bokoya and Ktama, while the Central Rif in general possesses a considerable increment of it distributed in a median band from Beni Tuzin across to Zarket. A high ratio of it is likewise found in Tagzuth, next to the Ktaman nucleus. This type is not the blond Central Riffian, but an old brunet Mediterranean or negroid-Mediterranean which is closely linked with the former. Its presence will explain the sporadic distribution of hair form and other morphological traits.

SUMMARY

The analysis of Riffian and Senhajan tribes on the basis of ten measurements and eight indices has shown that the larger types are eastern and that in going westward one encounters increasingly smaller people. Exceptions are in the Maritime tribes and Beni Hamid and Beni Bu Nsar. The types are, however, similar in proportions, except in the three areas of greatest intrusion; the nomadic path, Taghzuth and Ktama, and Bokoya, Targuist, and the Maritimes. This intrusion is generally accompanied by a long, low headed type, relatively high shouldered. A more important type is the tall, thick-set, broad faced, and large nosed group in the eastern Rif, centered in Beni Said. The most significant type which this analysis has revealed is a high, narrow headed, short faced, small nosed group centered in Bokoya and Ktama, representing Mediterranean and perhaps negroid elements. This Mediterranean-like type is also strong in the Central Rif, where it accompanies the blonds. In the Senhaja, especially in Ktama, its strength may indicate a negroid reinforcement.

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CHAPTER XXII

ANALYSIS OF PIGMENTATION PHENOMENA

HAVING observed, as carefully as possible, the manifestations of blondism in northern Morocco, we are faced with the problem of its interpretation. Here we have in one of the most archaic culture areas of North Africa a pigment condition analogous to that existing in parts of the British Isles, northern France, and among the Old American population; a degree of blondism well in excess of any found in the other parts of North Africa yet studied, or in Spain, Portugal, and Italy, the supposed homelands of the Mediterranean race. Certain features of this blondism, notably the high degree of rufosity and the excessive blondism of beards, indicate a disharmony characteristic of mixed groups. The high percentage of skin colors usually associated with blond populations is perhaps the most striking feature of this study.

In considering the distributions of the different elements of blondism, we have observed that skin color and beard color adhere to the areas expected, with highest blondism occurring in the nuclear tribes, and the darkest values found along the traditional routes of invasion. In eye color, on the other hand, the central area runs relatively dark, except for Beni Amart, which is the fairest tribal group, in every way, in our entire area. An early eye blondism, darkened in all but the very center of the nucleus, is indicated, with a subsequent reënforcement from the east. In the relative proportions of dark brown and light brown eyes, the central area retains the lighter brunet factor, and the invasion routes are again clearly marked by the concentration of the darker.

This problem, then, is one of the greatest complexity. In attempting to solve it, let us first see in how far the various elements of blondism inter-correlate. The accompanying list of coefficients of mean square contingency shows that the highest degree of association is to be found between beard color and eye color. In each pair of contingencies between eye color and some other factor, eye color comes out more significantly when calculated by degree of pigment than when judged by hue alone. Skin color shows the lowest general degree of association of all the factors involved, and head hair color falls intermediate between it and the two most highly associated, both with each other and with all others; beard color and eye color by degree of pigment. Most of these contingencies are probably of significance. In order to determine this let us in each table compare the actual with the expected, or independence, frequencies.

TABLE 121. PIGMENTATION OF SKIN, EYES, HEAD HAIR, AND BEARD: COEFFICIENTS OF MEAN SQUARE CONTINGENCY

	C.
Skin color and head hair color	+.22
Skin color and beard color	+.26
Skin color and eye color	+.18
Skin color and eye color, degree of pigment	+.28
Head hair color and eye color	+.30
Head hair color and eye color, degree of pigment	+.32
Beard color and eye color	+.40
Beard color and eye color, degree of pigment	+.41

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Skin color and head hair color. C = +.22

Head Hair Color	Skin Color: Light No.	Light F.	Light I. F.	Medium F.	Medium I. F.	Dark F.	Dark I. F.	Yellowish F.	Yellowish I. F.
Black	220	123	145.21	82	64.29	13	9.62	2	.87
Dark brown	233	166	153.79	58	68.09	9	10.19		
Reddish-brown	22	17	14.52	5	6.43				
Light brown	27	25	17.82	2	7.89				
Light	1	1	.66						
Total	503	332		147		22		2	

Skin color and beard color. C = +.26

Beard Color	Skin Color: Light No.	Light F.	Light I. F.	Medium F.	Medium I. F.	Dark F.	Dark I. F.	Yellowish F.	Yellowish I. F.
Black	162	86	105.30	64	48.68	10	7.49	2	.68
Dark brown	119	78	77.25	31	35.75	10	5.50		
Reddish-brown	67	55	43.49	11	20.13	1	3.09		
Light brown	90	56	58.42	33	27.04	1	4.16		
Light	38	34	24.67	4	11.42				
Total	476	309		143		22		2	

Skin color and eye color. C = +.18

Eye Color	Skin Color: Light No.	Light F.	Light I. F.	Medium F.	Medium I. F.	Dark F.	Dark I. F.	Yellowish F.	Yellowish I. F.
Black	4	1	2.62	3	2.09				
Dark brown	121	73	79.37	45.5	35.91	2.5	5.26		
Light brown	100	59	65.60	32	29.68	8	4.35	1	.38
Gray-brown	99.5	67.5	65.26	28	29.53	4	4.32		
Green-brown	123.5	85.5	81.01	33.5	36.65	3.5	5.37	1	.46
Blue-brown	70	53	45.92	13	20.78	4	3.04		
Light	11	8	7.22	2	3.26	1	.48		
Total	529	347		157		23		2	

Skin color and eye color, degree of pigment. C = +.28

Eye Color, Degree of Pigment	Skin Color: Light No.	Light F.	Light I. F.	Medium F.	Medium I. F.	Dark F.	Dark I. F.	Yellowish F.	Yellowish I. F.
Black	4	1	2.62	3	2.09				
Dark brown	121	73	79.37	45.5	35.91	2.5	5.26		
Light brown	100	59	65.60	32	29.68	8	4.35	1	.38
+++Dark	2	2	1.31	2	.59				
++Dark	33	24	21.65	5	9.79	4	1.43		
Even	168	112.5	103.64	49.5	49.86	6	7.30		
++Light	71	53.5	46.57	15	21.07	1.5	3.09	1	.27
+++Light	19	16	12.46	3	5.64				
Light	11	8	6.56	2	2.97	1	.43		
Total	529	347		157		23		2	

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Head hair color and eye color. C = +.30

Eye Color	Head Hair Color: No.	Black F.	Black I. F.	Dark Brown F.	Dark Brown I. F.	Reddish-brown F.	Reddish-brown I. F.	Light Brown F.	Light Brown I. F.	Light F.	Light I. F.
Black	4	4	1.75								
Dark brown	117.5	55.5	51.26	56.5	54.54	3	5.15	2.5	6.32		
Light brown	98.5	48	42.97	40.5	45.72	4	4.32	6	5.30		
Gray-brown	96.5	47	42.10	43.5	44.79	4	4.23	2	5.19		
Green-brown	113.5	39.5	49.51	58.5	52.68	5	4.97	10.5	6.10		
Blue-brown	66	24	28.79	32	30.63	6	2.89	4	3.54		
Light	6	1	2.61	2	2.78	..	..	2	2.31	1	.01
Total	502	219		219		22		27		1	

Head hair and eye color, degree of pigment. C = +.32

Eye Color, Degree of Pigment	Head Hair Color: No.	Black F.	Black I. F.	Dark Brown F.	Dark Brown I. F.	Reddish-brown F.	Reddish-brown I. F.	Light Brown F.	Light Brown I. F.	Blond F.	Blond I. F.
Black	4	4	1.75								
Dark brown	117.5	55.5	51.26	56.5	54.54	3	5.15	2.5	6.32		
Light brown	98.5	48	42.97	40.5	45.72	4	4.32	6	5.30		
+++Dark	2	2	.87								
++Dark	36	18	15.71	14	16.71	2	1.58	2	1.94		
Even	157	62.5	68.49	81	72.87	9	6.88	4.5	8.44		
++Light	63	25	27.48	30	29.24	1	2.76	7	3.39		
+++Light	18	3	7.85	9	8.35	3	.79	3	.97		
Light	6	1	2.61	2	2.78	..	..	2	.32	1	.01
Total	502	219		233		22		27		1	

Beard color and eye color. C = +.40

Eye Color	Beard Color: No.	Black F.	Black I. F.	Dark Brown F.	Dark Brown I. F.	Reddish-brown F.	Reddish-brown I. F.	Light Brown F.	Light Brown I. F.	Light F.	Light I. F.
Black	4	4	1.28								
Dark brown	105	41.5	35.58	35	26.31	12	14.81	13	19.89	3.5	8.40
Light brown	89	36	30.17	22.5	22.30	11	12.55	14	16.86	5.5	7.12
Gray-brown	92.5	35	31.35	24.5	23.17	10	13.05	20	17.53	3	7.40
Green-brown	113.5	32.5	38.47	19	28.43	20	16.01	28	21.50	14	9.08
Blue-brown	63	12	21.35	16	15.78	14	8.89	15	11.94	6	5.04
Light	8	2	2.00	..	..	..	..	..	..	6	.64
Total	475	161		119		67		90		38	

Beard color and eye color, degree of pigment. C = +.41

Eye Color, Degree of Pigment	Beard Color: No.	Black F.	Black I. F.	Dark Brown F.	Dark Brown I. F.	Reddish-brown F.	Reddish-brown I. F.	Light Brown F.	Light Brown I. F.	Light F.	Light I. F.
Black	4	4	1.28								
Dark brown	105	41.5	35.58	35	26.31	12	14.81	13	19.89	3.5	8.40
Light brown	89	36	30.17	22.5	22.30	11	12.55	14	16.86	5.5	7.12
+++Dark	0										
++Dark	33	12	11.18	10	8.27	3	4.65	4	6.25	4	2.64
Even	154	49.5	52.20	34	38.58	27	21.72	36	29.18	7.5	12.32
++Light	64	16	21.69	12.5	16.03	10	9.03	18	12.13	7.5	5.12
+++Light	18	2	6.10	3	4.51	4	2.54	5	3.41	4	1.44
Light	8	..	..	2	2.00	..	..	..	..	6	.64
Total	475	161		119		67		90		38	

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In the skin color and head hair color table, dark brown and light brown hair, especially the latter, seem to vary from expectation in a light direction. Black leans towards the medium category, whereas reddish-brown shows no marked trend. With a coefficient of over twenty, this association seems to be slightly significant. In skin color and beard color, the widest variants from the expected frequencies are the pure light and black beards, in their respective directions. Dark brown shows no important deviation, whereas reddish-brown leans to the light extreme, and light brown seems, if anything, lumped toward medium.

Skin color and eye color, judged by hue, show no real association with one another. Light brown and dark brown eyes run to dark skins, and blue-brown eyes to light ones. The other eye colors seem to have no connection with skin color. A coefficient less than .20 reflects this. In the second skin and eye color table, however, in which the mixed eyes are given quantitative designations, the coefficient is .10 higher, and the mixed eyes lean toward light in proportion to their own degrees of blondism, except for the +++ categories. This contingency shows a low significance.

In the two tables showing the contingencies between head hair and eye color, the variations run low individually, but in a fairly consistent direction. The pure dark eyes of all three categories, and the gray-browns as well, tend to connect themselves with black hair, whereas of the two lighter mixed hues and the pure lights, the green-browns go with the lightest head hair. The quantitative division of mixed eyes produces little better results, with the cleavage coming this time between ++ Dark and Even.

When we associate beard color with eye color, we obtain definite results. The general trend runs as it should, with the points of cleavage falling the same as with head hair color and eye color. Gray-brown and ++Dark are least differentiated. The high coefficients, which make these the most significant contingencies of the lot, are mathematically dependent upon the lumping which occurs between pure light eyes and pure light beards. Apparently these two go strongly together, whatever the head hair color, and no matter how mildly the mixtures follow in their train.

We have, it would appear, strong enough associations between beard and eye color to indicate the presence of a blond type in the region, as well as one or more brunet types. The mixed majority shows only a slight association between the different elements of blondism, which may be taken to indicate either a very ancient mixture, so thorough that few individuals, if any, retain the purity of an original type, and in which the various factors have thus had time to follow their own patterns of inheritance in the group as a whole; or the reenforcement of certain blond factors separately at different times. Both conclusions are probably in a degree true. In regard to the former, an original mixture between blond and brunet may have resulted in the formation of a light brown eyed type, alongside the blonds of varying degree; a dark haired light eyed group from the east may have reënforced light eyes in that quarter, and dark brown eyed peoples from the southeast and southwest may have introduced these factors over the traditional invasion routes.

There remains hovering above all this theory, however, the possibility that this blondism may be a local mutation fostered in the temperate mountain region by isolation, and that the association between the Riffians and the North Europeans may be a chance one. If this be true, one may expect no difference in morphological and metrical characters between the most blond and the most brunet. The way to settle it is to divide the Riffian series into types based on pigmentation, difficult as this may be owing to the low degree of inter-correlation between the various elements.

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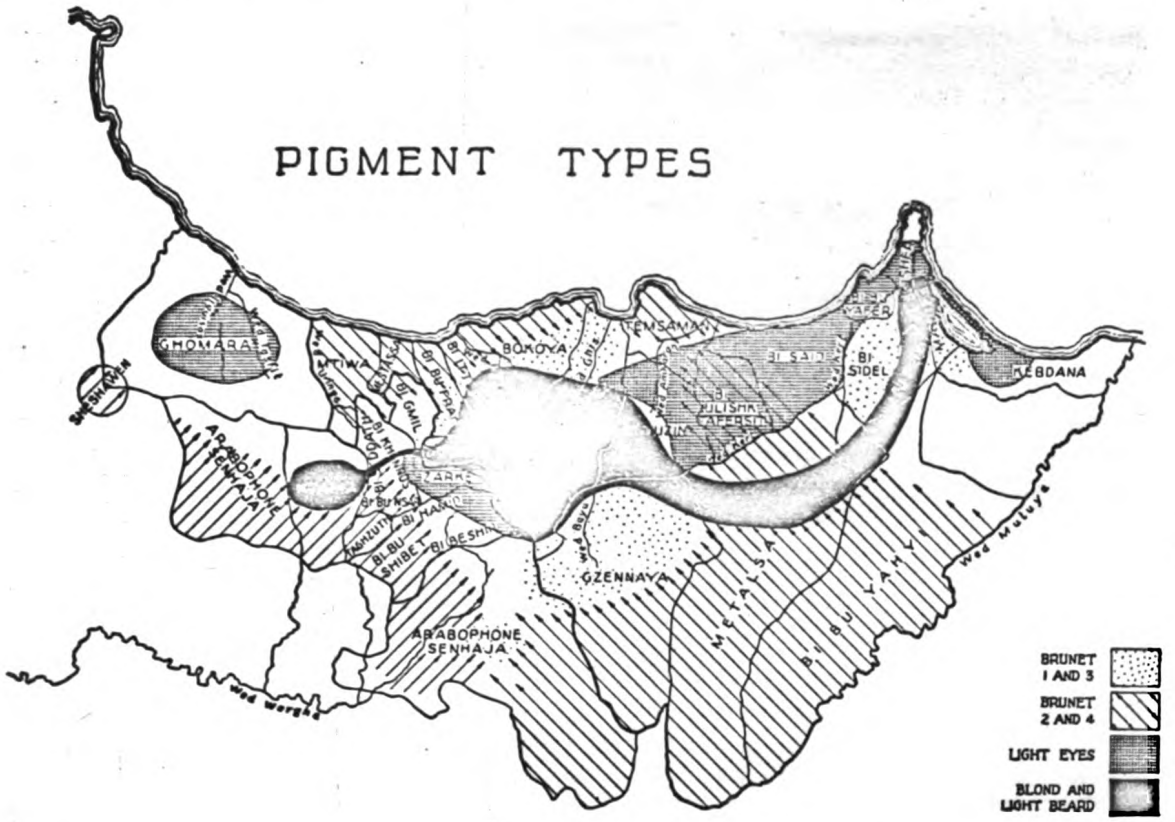
I have chosen beard color and eye color, calculated according to the degree of pigment, as the two most suitable criteria on which to base these types; the former because it offers more variation than the head hair color, giving us more to work with, and the latter because it shows the relative blondism of the iris better than does the other system of eye color tabulation. I have omitted skin color in order not to complicate the matter and make too many types, and also in order to save it as a check upon the others.



MAP 40

TABLE 122. PIGMENT TYPES, ADULT, BASED ON BEARD AND EYE COLOR

No.	Type	Character
41	Blond	Beard light brown or blond, eyes ++light, +++light, and light.
48	Light eyes	Beard reddish-brown or darker, eyes ++light, +++light, and light.
87	Light beard	Beard light brown or blond, eyes even or darker.
167	Intermediate	Beard reddish-brown or darker, eyes even or darker, but beard must be reddish-brown or eyes mixed.
18[1]	Brunet No. 1	Beard dark brown, eyes light brown.
33	Brunet No. 2	Beard dark brown, eyes dark brown.
36	Brunet No. 3	Beard black, eyes light brown.
41	Brunet No. 4	Beard black, eyes dark brown.
(4)	(Black eyes)	Beard black, eyes black.
(55)	(Unknown)	Beard or eye color unknown.
530	Total Rif	

[1] One individual, of Beni Tusin, had dark brown beard, light brown eyes, and head hair color unknown. In all other instances in the four brunet types, the head hair color was known to agree with that of the beard. In all cases of black head hair and dark brown beards, the eye color was mixed.

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We thus have eight types, four of them partially blond, and four of them intrinsically brunet. Because of the distribution of the different types of brown eyes I have separated the brunet groups partly on this basis. Because dark brown hair does not necessarily imply pure brunet qualities, I have separated the dark browns from the blacks in beard color.

In regard to the blonds, no type of course is pure, since there is but one pure blond individual in the entire series. The so-called "Blond" type, however, represents individuals as blond as those whom most contemporary investigators would so designate. Between the light eyed and the light bearded types, it is impossible to say which represents the greater degree of blondism. I have segregated them because of the distributions of their characteristic elements. The intermediate type represents the bulk of the Riffians, or the general residuum of the mixture.

The tribal distribution of these types may best be interpreted by combining certain of those which seem to go together, in order to avoid confusion. The Blond and Light Beard types have similar if not identical distributions. Mazuza, the Nomads, Beni Tuzin, Beni Urriaghel, Beni Amart, Targuist, Bokoya, and Ktama all have 30 per cent or over of these types in combination. This distribution indicates the general path of blondism, with two puzzling exceptions, the Nomads and Ktama. In both cases this can be ascribed to a large number of light brown beards, without an accompanying proportion of pure lights. Again, in trying to obtain large enough samples we have somewhat distorted our types. Within the Blond type, by splitting it up into the three lightest categories, we obtain the following results:

	No.	Tribes
Pure blond, head, beard, eyes	1	1 Mazuza
Pure blond, beard and eyes	3	2 Beni Amart, 1 Beni Tuzin
Pure blond, beard, eyes ++light	2	1 Galiya, 1 Gzennaya

The six individuals who thus are found to be the blondest within the Blond type are distributed as one would expect, four in the central nucleus or close to it, and two in the eastern nucleus. No individuals comparable to these six were found in the Senhaja or Ghomara. Thus the prominent position of the Nomads and Ktama in this combination falls to the most mixed borderlines of the two categories.

The distributions of Light Eyes and Intermediate also are found to be mutually similar. Combining them, we find their distribution split into two, with Gzennaya, Beni Tuzin, Beni Urriaghel, Bokoya, and the Maritime tribes separating them from Beni Amart, Targuist, Zarket, the Arabophone Senhaja, and Ghomara. In other words, these types are mainly peripheral to the Central Rif, while avoiding the Senhajan and Zenatan invasion routes.

Combining Brunet No. 1 and Brunet No. 3, we find that Kebdana, Mazuza, and Galiya on the east; and Gzennaya, Beni Urriaghel, Targuist, and Bokoya in the center and west, are the foci of these types; which thus are seen to accompany the Blond and Light Beard types, except that they do not extend as far westward as do the light brown beards, nor are they found in profusion among the Nomads. They leave the blondest tribe, Beni Amart, relatively alone. They are notably absent from the Senhaja and Ghomara.

Brunet No. 2 and Brunet No. 4, the dark brown eyed brunets, assume their expected peripheral and invasive distribution. They are strong in the Nomadic region, in the tribes of the Northwestern seacoast, and strongest of all in the Senhajan tribes of Beni Hamid, Taghzuth, and Ktama.

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TABLE 123. DISTRIBUTION OF PIGMENT TYPES

By percentages

	No.	Blond	Light Eye	Light Beard	Intermediate	Brunet No. 1	Brunet No. 2	Brunet No. 3	Brunet No. 4	Black Eyes
Total Rif	475	8.63 (41)	10.11 (48)	18.32 (87)	35.16 (167)	3.79 (18)	6.95 (33)	7.58 (36)	8.63 (41)	.84 (4)
Total Senhaja	179	6.70 (12)	6.70 (12)	13.97 (25)	31.28 (56)	3.35 (6)	5.59 (10)	3.35 (6)	25.70 (46)	3.35 (6)
Ghomara	69	2.90 (2)	15.94 (11)	15.94 (11)	39.13 (27)	2.90 (2)	8.70 (6)	7.25 (5)	5.80 (4)	1.45 (1)
Sheshawen	25	..	..	4.00 (1)	32.00 (8)	4.00 (1)	32.00 (8)	16.00 (4)	12.00 (3)	
Arabs	78	..	11.54 (9)	6.41 (5)	23.08 (18)	1.28 (1)	3.85 (3)	21.79 (17)	30.77 (24)	1.28 (1)
Shluh	217	1.38 (3)	7.83 (17)	10.14 (22)	22.12 (48)	6.45 (14)	4.15 (9)	17.51 (38)	25.81 (56)	4.61 (10)
Kebdana	13	..	7.69 (1)	15.38 (2)	53.85 (7)	..	..	23.08 (3)		
Masuza	27	14.81 (4)	11.11 (3)	18.52 (5)	22.22 (6)	11.11 (3)	..	11.11 (3)	11.11 (3)	
Galiya	54	12.96 (7)	7.41 (4)	14.81 (8)	44.44 (24)	3.70 (2)	3.70 (2)	11.11 (6)	..	1.85 (1)
Nomads	26	11.54 (3)	11.54 (3)	30.77 (8)	19.23 (5)	..	3.85 (1)	3.85 (1)	15.38 (4)	3.85 (1)
Said	26	7.69 (2)	3.85 (1)	15.38 (4)	42.31 (11)	..	19.23 (5)	3.85 (1)	7.69 (2)	
Ulishk	51	1.96 (1)	13.73 (7)	15.69 (8)	45.10 (23)	1.96 (1)	5.88 (3)	3.92 (2)	7.84 (4)	3.92 (2)
Temsaman	45	4.44 (2)	8.89 (4)	8.89 (4)	44.44 (20)	2.22 (1)	11.11 (5)	6.67 (3)	13.33 (6)	
Tusin	36	13.89 (5)	11.11 (4)	19.44 (7)	22.22 (8)	5.56 (2)	13.89 (5)	2.78 (1)	11.11 (4)	
Gzennaya	48	6.25 (3)	10.42 (5)	20.83 (10)	20.83 (10)	8.33 (4)	10.42 (5)	8.33 (4)	14.58 (7)	
Urriaghel	50	8.00 (4)	10.00 (5)	22.00 (11)	32.00 (16)	4.00 (2)	6.00 (3)	12.00 (6)	6.00 (3)	
Amart	21	14.29 (3)	9.52 (2)	28.57 (6)	42.86 (9)	4.76 (1)				
Targuist	14	14.29 (2)	..	21.43 (3)	50.00 (7)	..	..	14.29 (2)		
Bokoya	18	16.67 (3)	22.22 (4)	16.67 (3)	11.11 (2)	5.56 (1)	11.11 (2)	5.56 (1)	11.11 (2)	
Maritimes	21	9.52 (2)	4.76 (1)	19.05 (4)	38.10 (8)	..	4.76 (1)	4.76 (1)	19.05 (4)	
Inter-tribal	25	..	16.00 (4)	16.00 (4)	44.00 (11)	4.00 (1)	4.00 (1)	8.00 (2)	8.00 (2)	
Zarket	22	4.55 (1)	22.73 (5)	18.18 (4)	31.82 (7)	..	..	9.09 (2)	13.64 (3)	
Bu Nsar	22	13.64 (3)	9.09 (2)	13.64 (3)	27.27 (6)	..	9.09 (2)	9.09 (2)	18.18 (4)	
Hamid	17	11.76 (2)	11.76 (2)	5.88 (1)	11.76 (2)	5.88 (1)	11.76 (2)	..	41.18 (7)	
Taghzuth	57	..	..	14.04 (8)	38.80 (22)	3.51 (2)	5.26 (3)	1.75 (1)	33.33 (19)	3.51 (2)
Ktama	20	10.00 (2)	..	20.00 (4)	15.00 (3)	5.00 (1)	5.00 (1)	..	30.00 (6)	15.00 (3)
Ar. Sen.	40	10.00 (4)	7.50 (3)	10.00 (4)	37.50 (15)	5.00 (2)	5.00 (2)	5.00 (2)	17.50 (7)	2.50 (1)

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CONDENSED

	No.	Blond	Light Eyes		
		Light Beard	Intermediate	Brunets Nos. 1, 3	Brunets Nos. 2, 4
Total Rif	475	26.95	45.27	11.37	16.42
Total Senhaja	179	20.67	37.99	6.70	34.64
Ghomara	69	18.84	55.07	10.14	15.94
Sheshawen	25	4.00	32.00	20.00	44.00
Arabs	78	6.41	34.62	23.08	35.90
Shluh	217	11.98	30.41	23.96	34.56
Kebdana	13	15.38	61.54	23.08	
Mazuza	27	33.33	33.33	22.22	11.11
Galiya	54	27.78	51.85	14.81	5.56
Nomads	26	42.31	30.77	3.85	23.08
Said	26	23.08	46.15	3.85	26.92
Ulishk	51	17.65	58.82	5.88	13.73
Temsaman	45	13.33	53.33	8.89	24.44
Tuzin	36	33.33	33.33	8.33	25.00
Gzennaya	48	27.08	31.25	16.67	25.00
Urriaghel	50	30.00	42.00	16.00	12.00
Amart	21	42.86	52.38	4.76	
Targuist	14	35.71	50.00	14.29	
Bokoya	18	33.33	33.33	11.11	22.22
Maritimes	21	28.57	42.86	4.76	23.81
Rif Inter-tribal	25	16.00	60.00	12.00	12.00
Zarket	22	22.73	54.55	9.09	13.64
Bu Nsar	22	27.27	36.36	9.09	27.27
Hamid	17	17.65	23.53	11.76	52.94
Taghzuth	57	14.04	36.80	5.26	42.11
Ktama	20	30.00	15.00	5.00	50.00
Ar. Sen.	40	20.00	45.00	10.00	25.00

Looking at the six Moroccan groups by columns, we see that the Blond and Light Beard types are concentrated in the Rif. The Light Eyes and Intermediate types are proportionately most frequent in the Ghomara, although more frequent in the Rif than in the remaining regions. As for the brunet types, the light brown eyed elements are stronger in the Rif than in the Senhaja and Ghomara, although Sheshawen, the Arabs, and the Shluh, have proportionately twice as many as the Riffians; the dark brown eyed and black eyed brunets are least numerous in the Ghomara and Rif, in which regions they are but half as frequent as elsewhere.

One may say in summarizing pigment type distribution that relatively pure blonds and blond-bearded individuals are peculiarly Riffian; the light eyed and intermediate in pigment are likewise Riffian, occupying a peripheral distribution in the Rif, and are also Ghomaran; while brunet types on the whole belong with Sheshawen, the Arabs, and the Shluh. The brunet type which accompanies the blonds in the recessive center of the Rif is light brown eyed; dark brown eyes are most frequent on or near routes of traditional or historic invasions.

The accompanying map is intended to show the distribution of these types in a schematic way, since such an effect could not be produced by a strict adherence to tribal boundaries, nor without the use of a single map for each combination of pigment groups.

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TABLE 124. METRICAL CONSTANTS OF RIFFIAN PIGMENT TYPES

	No.	M.	σ	V.
Stature				
Blond	41	168.41 ± .58	5.55 ± .42	3.29 ± .25
Light eyes	48	169.27 ± .55	5.52 ± .39	3.26 ± .23
Light beard	87	168.60 ± .44	6.09 ± .31	3.62 ± .18
Intermediate	166	169.34 ± .34	6.62 ± .24	3.91 ± .14
Brunet No. 1	18	168.56 ± 1.09	6.86 ± .77	4.07 ± .46
Brunet No. 2	33	168.33 ± .95	8.12 ± .67	4.82 ± .40
Brunet No. 3	36	167.92 ± .44	3.94 ± .31	2.34 ± .19
Brunet No. 4	41	169.93 ± .62	5.93 ± .44	3.49 ± .26
Relative shoulder height				
Blond	41	82.07 ± .11	1.04 ± .08	1.27 ± .09
Light eyes	48	81.85 ± .12	1.17 ± .08	1.43 ± .10
Light beard	87	82.12 ± .07	.95 ± .05	1.16 ± .06
Intermediate	166	82.29 ± .05	1.01 ± .04	1.23 ± .05
Brunet No. 1	18	81.89 ± .21	1.33 ± .15	1.62 ± .18
Brunet No. 2	33	81.85 ± .10	1.05 ± .09	1.28 ± .11
Brunet No. 3	36	82.17 ± .09	.83 ± .07	1.01 ± .08
Brunet No. 4	41	82.05 ± .11	1.05 ± .08	1.28 ± .10
Relative sitting height				
Blond	41	51.07 ± .18	1.67 ± .12	3.27 ± .24
Light eyes	48	51.11 ± .16	1.64 ± .11	3.21 ± .22
Light beard	87	51.23 ± .10	1.34 ± .07	2.62 ± .13
Intermediate	166	50.72 ± .09	1.67 ± .06	3.29 ± .12
Brunet No. 1	18	51.78 ± .26	1.65 ± .19	3.19 ± .36
Brunet No. 2	33	50.58 ± .23	1.98 ± .16	3.92 ± .33
Brunet No. 3	36	51.03 ± .20	1.82 ± .14	3.56 ± .28
Brunet No. 4	41	51.07 ± .14	1.42 ± .11	2.78 ± .21
Relative shoulder breadth				
Blond	41	22.63 ± .12	1.10 ± .08	4.86 ± .36
Light eyes	48	22.44 ± .10	1.02 ± .07	4.54 ± .31
Light beard	87	22.44 ± .07	1.01 ± .05	4.50 ± .23
Intermediate	166	22.40 ± .05	.99 ± .04	4.42 ± .16
Brunet No. 1	18	22.83 ± .18	1.02 ± .15	4.42 ± .50
Brunet No. 2	33	22.91 ± .11	.92 ± .08	4.02 ± .33
Brunet No. 3	36	22.72 ± .10	.87 ± .07	3.83 ± .31
Brunet No. 4	41	22.54 ± .10	.98 ± .07	4.26 ± .32
Relative span				
Blond	40	104.25 ± .31	2.88 ± .21	2.76 ± .28
Light eyes	48	103.90 ± .23	2.34 ± .16	2.25 ± .15
Light beard	86	104.00 ± .17	2.29 ± .12	2.20 ± .11
Intermediate	165	104.02 ± .13	2.41 ± .09	2.31 ± .08
Brunet No. 1	18	103.94 ± .43	2.68 ± .30	2.58 ± .29
Brunet No. 2	33	104.55 ± .31	2.61 ± .22	2.50 ± .21
Brunet No. 3	35	104.31 ± .25	2.22 ± .18	2.13 ± .17
Brunet No. 4	41	104.83 ± .24	2.28 ± .17	2.18 ± .16
Bi-iliac				
Blond	41	29.36 ± .22	2.08 ± .15	7.03 ± .52
Light eyes	48	30.08 ± .20	2.07 ± .14	6.87 ± .47
Light beard	87	29.51 ± .11	1.56 ± .08	5.29 ± .27
Intermediate	167	29.84 ± .10	1.93 ± .07	6.47 ± .24
Brunet No. 1	18	29.61 ± .30	1.87 ± .21	6.32 ± .71
Brunet No. 2	33	29.39 ± .26	2.24 ± .19	7.63 ± .63
Brunet No. 3	36	29.19 ± .20	1.79 ± .14	6.14 ± .49
Brunet No. 4	40	29.82 ± .17	1.64 ± .13	5.50 ± .44

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	No.	M.	σ	V.
Head length				
Blond	41	195.02 ± .61	5.79 ± .43	2.97 ± .22
Light eyes	48	195.31 ± .73	7.54 ± .52	3.86 ± .27
Light beard	87	193.28 ± .48	6.66 ± .34	3.45 ± .18
Intermediate	167	195.63 ± .32	6.14 ± .23	3.14 ± .12
Brunet No. 1	18	195.33 ± .136	8.58 ± .96	4.39 ± .49
Brunet No. 2	33	194.18 ± .75	6.36 ± .53	3.27 ± .27
Brunet No. 3	36	194.78 ± .62	5.56 ± .44	2.86 ± .23
Brunet No. 4	41	194.81 ± .71	6.76 ± .50	3.47 ± .26
Head breadth				
Blond	41	146.41 ± .60	5.69 ± .42	3.89 ± .29
Light eyes	48	146.62 ± .48	4.96 ± .34	3.39 ± .23
Light beard	87	145.71 ± .31	4.31 ± .22	2.96 ± .15
Intermediate	167	145.79 ± .25	4.85 ± .18	3.33 ± .12
Brunet No. 1	18	147.06 ± .73	4.59 ± .52	3.89 ± .29
Brunet No. 2	33	145.91 ± .68	5.80 ± .48	3.97 ± .33
Brunet No. 3	36	146.19 ± .44	3.93 ± .31	2.62 ± .21
Brunet No. 4	41	145.54 ± .38	3.62 ± .27	2.49 ± .19
Cephalic index				
Blond	41	75.12 ± .35	3.29 ± .25	4.38 ± .33
Light eyes	48	75.23 ± .30	3.03 ± .21	4.03 ± .28
Light beard	87	75.40 ± .21	2.90 ± .15	3.85 ± .20
Intermediate	167	74.56 ± .15	2.79 ± .11	3.74 ± .14
Brunet No. 1	18	75.22 ± .41	2.55 ± .29	3.34 ± .18
Brunet No. 2	33	75.18 ± .35	2.95 ± .25	3.93 ± .33
Brunet No. 3	36	75.08 ± .24	2.13 ± .17	2.84 ± .23
Brunet No. 4	41	74.78 ± .27	2.58 ± .19	3.45 ± .26
Head height				
Blond	41	129.93 ± .60	5.68 ± .42	4.38 ± .33
Light eyes	48	131.10 ± .62	6.39 ± .44	4.88 ± .34
Light beard	87	128.44 ± .44	6.14 ± .31	4.78 ± .24
Intermediate	167	129.18 ± .32	6.04 ± .22	4.68 ± .17
Brunet No. 1	18	131.28 ± .86	5.39 ± .61	4.11 ± .46
Brunet No. 2	33	128.06 ± .80	6.80 ± .57	5.32 ± .44
Brunet No. 3	36	129.64 ± .51	4.53 ± .36	3.57 ± .28
Brunet No. 4	41	129.95 ± .69	6.55 ± .49	5.04 ± .38
Length-height index				
Blond	41	66.68 ± .37	3.48 ± .26	5.22 ± .39
Light eyes	48	67.15 ± .30	3.09 ± .21	4.60 ± .32
Light beard	87	66.28 ± .20	2.82 ± .14	4.26 ± .22
Intermediate	167	66.04 ± .14	2.73 ± .10	4.13 ± .15
Brunet No. 1	18	67.28 ± .56	3.52 ± .40	5.23 ± .59
Brunet No. 2	33	65.97 ± .35	2.97 ± .25	4.54 ± .38
Brunet No. 3	36	66.56 ± .28	2.49 ± .20	3.74 ± .30
Brunet No. 4	41	66.80 ± .29	2.79 ± .21	4.17 ± .31
Breadth-height index				
Blond	41	88.85 ± .48	4.57 ± .34	5.26 ± .39
Light eyes	48	89.62 ± .59	6.03 ± .41	6.73 ± .46
Light beard	87	88.16 ± .32	4.44 ± .23	5.03 ± .26
Intermediate	167	88.74 ± .23	4.34 ± .16	4.90 ± .18
Brunet No. 1	18	89.33 ± .67	4.22 ± .48	4.72 ± .53
Brunet No. 2	33	88.21 ± .58	4.96 ± .41	5.63 ± .47
Brunet No. 3	36	88.72 ± .34	3.04 ± .24	3.43 ± .27
Brunet No. 4	41	89.34 ± .39	4.12 ± .31	4.61 ± .34

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	No.	M.	σ	V.
Minimum frontal				
Blond	41	106.98 ± .43	4.05 ± .30	4.12 ± .31
Light eyes	48	106.90 ± .55	5.69 ± .39	5.32 ± .37
Light beard	87	105.47 ± .39	5.35 ± .27	5.07 ± .26
Intermediate	166	106.72 ± .28	5.27 ± .20	4.93 ± .18
Brunet No. 1	18	105.33 ± .65	4.07 ± .46	3.86 ± .43
Brunet No. 2	33	106.52 ± .55	4.71 ± .39	4.47 ± .37
Brunet No. 3	36	106.28 ± .36	3.23 ± .26	3.11 ± .25
Brunet No. 4	41	106.15 ± .44	4.19 ± .31	3.95 ± .30
Fronto-parietal index				
Blond	41	73.39 ± .31	2.97 ± .22	4.05 ± .30
Light eyes	48	73.15 ± .33	3.35 ± .23	4.58 ± .32
Light beard	87	72.41 ± .24	3.31 ± .17	4.57 ± .23
Intermediate	166	73.28 ± .17	3.34 ± .12	4.57 ± .17
Brunet No. 1	18	71.72 ± .92	5.77 ± .65	7.77 ± .87
Brunet No. 2	33	73.30 ± .29	2.43 ± .20	3.32 ± .28
Brunet No. 3	36	73.03 ± .30	2.63 ± .21	3.60 ± .29
Brunet No. 4	41	72.95 ± .29	2.79 ± .21	3.83 ± .29
Bizygomatic				
Blond	41	136.15 ± .55	5.21 ± .39	3.83 ± .29
Light eyes	48	137.00 ± .51	5.32 ± .36	3.88 ± .27
Light beard	86	135.35 ± .39	5.41 ± .28	3.99 ± .21
Intermediate	166	136.71 ± .25	4.73 ± .18	3.46 ± .13
Brunet No. 1	18	135.67 ± .88	5.56 ± .62	4.09 ± .46
Brunet No. 2	33	136.06 ± .55	4.67 ± .39	2.91 ± .24
Brunet No. 3	36	136.31 ± .46	4.11 ± .33	3.01 ± .24
Brunet No. 4	41	135.93 ± .44	4.19 ± .31	3.09 ± .23
Cephalo-facial index				
Blond	41	93.00 ± .42	3.68 ± .27	3.96 ± .30
Light eyes	48	93.48 ± .29	2.87 ± .20	3.07 ± .21
Light beard	86	92.86 ± .24	3.30 ± .17	3.55 ± .18
Intermediate	166	93.80 ± .15	2.87 ± .11	3.06 ± .11
Brunet No. 1	18	92.17 ± .48	3.00 ± .34	3.26 ± .37
Brunet No. 2	33	93.33 ± .34	2.87 ± .24	3.08 ± .26
Brunet No. 3	36	93.28 ± .28	2.47 ± .20	2.65 ± .21
Brunet No. 4	41	93.51 ± .34	3.19 ± .24	3.41 ± .25
Bigonial				
Blond	40	105.95 ± .70	6.67 ± .50	6.28 ± .47
Light eyes	48	105.40 ± .60	6.14 ± .42	5.82 ± .40
Light beard	87	105.71 ± .36	5.01 ± .26	4.74 ± .24
Intermediate	167	106.59 ± .32	6.19 ± .23	5.81 ± .21
Brunet No. 1	18	107.94 ± .72	4.52 ± .51	4.18 ± .47
Brunet No. 2	33	106.24 ± .64	5.47 ± .45	5.15 ± .43
Brunet No. 3	36	106.31 ± .80	7.07 ± .56	6.54 ± .52
Brunet No. 4	41	107.29 ± .67	6.31 ± .47	5.88 ± .44
Total face height				
Blond	41	125.27 ± .73	6.95 ± .70	5.55 ± .41
Light eyes	48	124.10 ± .69	7.09 ± .49	5.71 ± .39
Light beard	87	123.26 ± .57	7.82 ± .40	6.34 ± .32
Intermediate	167	124.86 ± .34	6.57 ± .24	5.27 ± .19
Brunet No. 1	18	124.72 ± 1.07	6.75 ± .76	5.33 ± .80
Brunet No. 2	33	124.21 ± .87	7.41 ± .61	5.96 ± .50
Brunet No. 3	36	124.39 ± .78	6.91 ± .55	5.56 ± .44
Brunet No. 4	41	123.71 ± .77	7.33 ± .55	5.92 ± .44

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	No.	M.	σ	V.
Facial index				
Blond	41	91.88 ± .55	5.25 ± .38	5.71 ± .42
Light eyes	48	90.69 ± .56	5.79 ± .40	6.34 ± .44
Light beard	86	91.15 ± .45	6.15 ± .32	6.75 ± .35
Intermediate	166	91.58 ± .27	5.13 ± .19	5.60 ± .21
Brunet No. 1	18	91.83 ± .78	4.90 ± .55	5.34 ± .60
Brunet No. 2	33	91.30 ± .70	5.96 ± .49	6.54 ± .54
Brunet No. 3	36	91.17 ± .62	5.49 ± .44	6.03 ± .48
Brunet No. 4	41	91.10 ± .61	5.75 ± .42	6.31 ± .46
Upper face height				
Blond	41	73.51 ± .56	5.29 ± .39	7.19 ± .53
Light eyes	48	72.85 ± .52	5.32 ± .37	7.30 ± .50
Light beard	87	72.69 ± .35	4.87 ± .25	6.69 ± .36
Intermediate	167	72.62 ± .25	4.70 ± .17	6.46 ± .24
Brunet No. 1	18	72.78 ± .70	4.43 ± .50	6.08 ± .68
Brunet No. 2	33	72.00 ± .39	4.66 ± .55	6.47 ± .76
Brunet No. 3	36	72.75 ± .56	4.97 ± .48	6.83 ± .65
Brunet No. 4	41	72.15 ± .57	5.38 ± .40	7.48 ± .56
Upper facial index				
Blond	41	54.05 ± .45	4.25 ± .32	7.87 ± .59
Light eyes	48	53.23 ± .39	4.00 ± .28	7.53 ± .52
Light beard	86	53.67 ± .29	3.93 ± .20	7.34 ± .38
Intermediate	166	53.16 ± .19	3.57 ± .13	6.72 ± .25
Brunet No. 1	18	53.67 ± .61	3.81 ± .43	7.11 ± .80
Brunet No. 2	33	52.91 ± .45	3.78 ± .31	7.14 ± .59
Brunet No. 3	36	53.42 ± .42	3.78 ± .30	7.08 ± .56
Brunet No. 4	41	52.90 ± .38	3.62 ± .27	6.84 ± .51
Nose height				
Blond	40	55.22 ± .45	4.26 ± .34	7.72 ± .61
Light eyes	48	55.50 ± .44	4.47 ± .31	8.05 ± .55
Light beard	87	54.52 ± .26	3.61 ± .18	6.43 ± .33
Intermediate	166	54.79 ± .20	3.83 ± .14	7.00 ± .26
Brunet No. 1	18	54.44 ± .47	2.98 ± .34	5.50 ± .62
Brunet No. 2	33	54.67 ± .47	4.02 ± .33	7.34 ± .61
Brunet No. 3	36	54.06 ± .48	4.25 ± .34	7.87 ± .63
Brunet No. 4	41	55.07 ± .48	4.52 ± .34	8.19 ± .61
Nose breadth				
Blond	40	34.00 ± .28	2.65 ± .21	7.80 ± .62
Light eyes	48	35.33 ± .24	2.46 ± .17	6.97 ± .48
Light beard	87	33.99 ± .18	2.49 ± .13	7.33 ± .38
Intermediate	166	34.78 ± .14	2.64 ± .10	7.60 ± .28
Brunet No. 1	18	35.00 ± .29	1.83 ± .21	5.23 ± .59
Brunet No. 2	33	34.00 ± .31	2.64 ± .22	7.77 ± .64
Brunet No. 3	36	34.22 ± .28	2.49 ± .20	7.27 ± .58
Brunet No. 4	41	35.15 ± .26	2.43 ± .18	6.90 ± .51
Nasal index				
Blond	40	61.75 ± .50	6.30 ± .47	10.20 ± .75
Light eyes	48	64.17 ± .63	6.49 ± .45	10.13 ± .70
Light beard	87	62.62 ± .44	6.07 ± .31	9.68 ± .50
Intermediate	166	63.99 ± .36	6.92 ± .26	10.82 ± .40
Brunet No. 1	18	64.06 ± .75	4.75 ± .53	7.41 ± .83
Brunet No. 2	33	62.00 ± .71	6.03 ± .50	9.73 ± .81
Brunet No. 3	36	64.36 ± .77	6.84 ± .54	10.65 ± .85
Brunet No. 4	41	64.17 ± .59	5.58 ± .42	8.70 ± .65

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DIFFERENCES BETWEEN MEANS OF RIFFIAN PIGMENT TYPES

	Blond–Light Eyes D.	Blond–Light Eyes XP.E.	Blond–Light Beard D.	Blond–Light Beard XP.E.	Blond–Intermediate D.	Blond–Intermediate XP.E.
Stature	.86	1.07	.19	.26	.93	1.38
Relative shoulder height	.22	1.38	.05	.38	.22	1.83
Relative sitting height	.04	.17	.16	.76	.35	1.75
Relative shoulder breadth	.19	1.19	.19	1.36	.23	1.77
Relative span	.35	.90	.25	.71	.23	.68
Bi-iliac	.72	2.40	.15	.60	.48	2.00
Head length	.29	.28	1.74	1.98	.61	.92
Head breadth	.21	.27	.70	1.03	.62	.95
Cephalic index	.11	.46	.28	.68	.56	1.47
Head height	1.17	1.36	1.49	2.01	.75	1.10
Length-height index	.47	.98	.40	.95	.64	1.64
Breadth-height index	.77	1.01	.69	1.19	.11	.21
Minimum frontal	.08	.11	1.51	2.61	.26	.51
Frontal-parietal index	.24	.53	.98	2.52	.11	.26
Bizygomatic	.85	.75	.80	1.19	.56	.93
Cephalo-facial index	.48	.94	.14	.29	.80	1.78
Bigonial	.55	.60	.24	.27	.64	.83
Total face height	1.17	1.17	2.01	2.16	.41	.51
Facial index	1.19	1.51	.73	1.03	.30	.49
Upper face height	.66	.87	.82	1.24	.89	1.46
Upper facial index	1.19	1.98	.73	1.35	.30	.61
Nose height	.28	.44	.70	1.35	.43	.88
Nose breadth	1.33	3.60	.01	.03	.78	2.52
Nasal index	2.42	3.03	.87	1.30	2.24	3.61
Mean	.66	1.12	.66	1.14	.56	1.25

	Blond–Brunet No. 3 D.	Blond–Brunet No. 3 XP.E.	Blond–Brunet No. 4 D.	Blond–Brunet No. 4 XP.E.	Light Eyes–Light Beard D.	Light Eyes–Light Beard XP.E.
Stature	.49	.67	1.52	1.79	.67	.94
Relative shoulder height	.10	.71	.02	.12	.27	1.90
Relative sitting height	.04	.15	0	0	.12	.63
Relative shoulder breadth	.09	.56	.09	.56	0	0
Relative span	.06	.15	.58	1.48	.10	.34
Bi-iliac	.17	.57	.46	1.70	.57	2.48
Head length	.24	.32	.21	.22	2.03	2.37
Head breadth	.22	.30	.87	1.22	.91	1.36
Cephalic index	.04	.09	.34	.77	.17	.46
Head height	.29	.37	.02	.02	2.66	3.50
Length-height index	.12	.26	.12	.26	.87	2.41
Breadth-height index	.13	.22	.49	.79	1.46	2.18
Minimum frontal	.70	1.25	.83	1.34	1.43	2.14
Fronto-parietal index	.36	.84	.44	1.05	.74	1.80
Bizygomatic	.16	.22	.22	.29	1.65	2.58
Cephalo-facial index	.28	.56	.51	.94	.62	1.63
Bigonial	.36	.34	1.34	1.38	.31	.44
Total face height	.88	.82	1.56	1.47	.82	.94
Facial index	.71	.84	.78	.95	.46	.64
Upper face height	.76	.96	1.36	1.70	.16	.25
Upper facial index	.71	1.14	.78	1.32	.46	.94
Nose height	1.16	1.76	.15	.23	.98	1.92
Nose breadth	.22	.56	1.15	3.03	1.34	4.47
Nasal index	2.61	2.84	2.43	3.15	1.55	2.01
Mean	.45	.69	.68	1.07	.85	1.60

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	Light Eyes–Intermediate D.	Light Eyes–Intermediate XP.E.	Light Eyes–Brunet No. 3 D.	Light Eyes–Brunet No. 3 XP.E.	Light Eyes–Brunet No. 4 D.	Light Eyes–Brunet No. 4 XP.E.
Stature	.07	.11	1.35	1.93	.66	1.93
Relative shoulder height	.44	3.39	.32	2.10	.17	1.06
Relative sitting height	.61	3.39	.08	.31	.04	.19
Relative shoulder breadth	.04	.36	.28	2.00	.10	.71
Relative span	.12	.46	.41	1.21	.93	2.82
Bi-iliac	.24	1.09	.89	3.18	.26	1.00
Head length	.32	1.42	.53	.63	.50	.50
Head breadth	.83	1.54	.43	.66	1.08	1.77
Cephalic index	.67	1.97	.15	.39	.45	1.12
Head height	1.92	2.74	1.46	1.83	1.15	1.24
Length-height index	1.14	3.45	.59	1.44	.35	.83
Breadth-height index	.88	1.40	.90	1.32	.28	3.94
Minimum frontal	.18	.29	.62	.94	.75	1.07
Fronto-parietal index	.13	.30	.12	.53	.17	.31
Bizygomatic	.29	.51	.69	1.00	1.07	1.60
Cephalo-facial index	.32	.97	.20	.50	.03	.07
Bigonial	1.19	1.75	.91	.91	1.82	2.10
Total face height	.76	.99	.29	.28	.39	.38
Facial index	.89	1.44	.48	.57	.41	.49
Upper face height	.23	.40	.10	.13	.70	.91
Upper facial index	.89	2.07	.48	.84	.41	.76
Nose height	.71	1.48	1.44	2.22	.43	.66
Nose breadth	.55	1.96	1.11	3.00	.18	.51
Nasal index	.18	.25	.19	.19	0	0
Mean	.57	1.41	.58	1.17	.52	1.18

	Light Beard–Intermediate D.	Light Beard–Intermediate XP.E.	Light Beard–Brunet No. 3 D.	Light Beard–Brunet No. 3 XP.E.	Light Beard–Brunet No. 4 D.	Light Beard–Brunet No. 4 XP.E.
Stature	.74	1.32	.68	1.10	1.33	1.75
Relative shoulder height	.17	1.89	.05	.45	.07	.54
Relative sitting height	.51	3.92	.20	.91	.16	.94
Relative shoulder breadth	.04	.44	.28	2.33	.10	.83
Relative span	.02	.10	.31	1.03	.83	2.86
Bi-iliac	.33	2.20	.32	1.39	.31	1.55
Head length	2.35	4.35	1.50	2.31	1.53	1.70
Head breadth	.08	.20	.48	.89	.83	1.69
Cephalic index	.16	.62	.32	1.00	.62	1.82
Head height	.74	1.37	1.20	1.79	1.51	1.84
Length-height index	.24	1.00	.28	.82	.52	1.49
Breadth-height index	.58	1.49	.56	1.19	1.18	2.36
Minimum frontal	1.25	2.61	.81	1.53	.62	1.05
Fronto-parietal index	.87	2.35	.62	1.63	.54	1.42
Bizygomatic	1.36	2.96	.96	1.60	.58	.98
Cephalo-facial index	.94	3.61	.42	1.14	.65	1.55
Bigonial	.88	1.83	.60	.68	1.58	2.08
Total face height	1.60	2.42	1.13	1.17	.45	.47
Facial index	.43	.83	.02	.03	.05	.07
Upper face height	.07	.16	.06	.09	.54	.81
Upper facial index	.43	1.23	.02	.04	.05	.10
Nose height	.27	.82	.46	.84	.55	1.00
Nose breadth	.79	3.43	.23	.70	1.16	3.63
Nasal index	1.37	2.40	1.74	1.96	1.55	2.10
Mean	.68	1.82	.56	1.11	.72	1.44

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	Intermediate-Brunet No. 3		Intermediate-Brunet No. 4		Brunet No. 3-Brunet No. 4	
	D.	XP.E.	D.	XP.E.	D.	XP.E.
Stature	1.42	2.54	.59	.83	2.01	2.65
Relative shoulder height	.12	1.20	.24	2.00	.12	.85
Relative sitting height	.31	1.41	.35	2.06	.04	.17
Relative shoulder breadth	.32	3.05	.14	1.33	.18	1.28
Relative span	.29	1.04	.81	3.00	.52	1.48
Bi-iliac	.65	2.95	.02	.10	.63	2.42
Head length	.85	1.67	.82	1.09	.03	.04
Head breadth	.40	.78	.25	.56	.65	1.12
Cephalic index	.52	1.86	.22	.71	.30	1.25
Head height	.46	.77	.77	1.01	.31	.36
Length-height index	.52	1.68	.76	2.37	.24	.60
Breadth-height index	.02	.05	.60	1.33	.62	1.19
Minimum frontal	.44	.98	.57	1.10	.13	.23
Fronto-parietal index	.25	.61	.33	.82	.08	.19
Bisygomatic	.40	.77	.78	1.53	.38	.59
Cephalo-facial index	.52	1.62	.29	.78	.23	.52
Bigonial	.28	.33	.70	.95	.98	.94
Total face height	.47	.55	1.15	1.37	.68	.62
Facial index	.41	.59	.48	.72	.07	.08
Upper face height	.13	.21	.47	.76	.60	.75
Upper facial index	.41	.89	.48	1.12	.07	.12
Nose height	.73	1.40	.28	.54	1.01	1.49
Nose breadth	.56	1.81	.37	1.23	.93	2.45
Nasal index	.37	.44	.18	.26	.19	.20
Mean	.45	1.23	.49	1.15	.46	.90

Means of Totals; Summary of Differences

By Criteria	D.	XP.E.
Stature	.90	1.35
Relative shoulder height	.17	1.32
Relative sitting height	.20	1.12
Relative shoulder breadth	.13	1.18
Relative span	.39	1.22
Bi-iliac	.41	1.71
Head length	.90	1.32
Head breadth	.57	.96
Cephalic index	.33	.98
Head height	1.06	1.42
Length-height index	.48	1.35
Breadth-height index	.62	1.32
Minimum frontal	.68	1.18
Fronto-parietal index	.40	1.01
Bisygomatic	.72	1.17
Cephalo-facial index	.43	1.13
Bigonial	.83	1.03
Total face height	.92	1.02
Facial index	.49	.68
Upper face height	.50	.71
Upper facial index	.49	.97
Nose height	.64	1.14
Nose breadth	.71	2.20
Nasal index	1.32	1.58
Mean	.59	1.22

By Types	D.	XP.E.
Blond-Light Eyes	.66	1.12
Blond-Light Beard	.66	1.14
Blond-Intermediate	.56	1.25
Blond-Brunet No. 3	.45	.69
Blond-Brunet No. 4	.68	1.07
Light Eyes-Light beard	.85	1.60
Light Eyes-Intermediate	.57	1.41
Light Eyes-Brunet No. 3	.58	1.17
Light Eyes-Brunet No. 4	.52	1.18
Light Beard-Intermediate	.68	1.82
Light Beard-Brunet No. 3	.56	1.11
Light Beard-Brunet No. 4	.72	1.44
Intermediate-Brunet No. 3	.45	1.23
Intermediate-Brunet No. 4	.49	1.15
Brunet No. 3-Brunet No. 4	.46	.90
Mean	.59	1.22

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Dispersions of values of XP.E. in twenty-four characters

	-1	1-2	2-3	3-4	4-5	5-6	6+	Mean
Normal	*12*	*7.68*	*3.36*	*.79*	*.15*	*.02*	*0*	*1.23*
Blond-Light Eyes	13	8	1	2	..	..	..	1.12
Blond-Light Beard	10	10	4	..	..	..	..	1.14
Blond-Intermediate	12	8	3	1	..	..	..	1.25
Blond-Brunet No. 3	20	3	1	..	..	..	..	.89
Blond-Brunet No. 4	12	10	..	2	..	..	..	1.07
Light Eyes-Light Beard	10	5	7	1	1	..	..	1.60
Light Eyes-Intermediate	10	9	2	3	..	..	..	1.41
Light Eyes-Brunet No. 3	13	6	3	2	..	..	..	1.17
Light Eyes-Brunet No. 4	9	10	4	1	..	..	..	1.18
Light Beard-Intermediate	7	7	6	3	1	..	..	1.82
Light Beard-Brunet No. 3	10	12	2	..	..	..	..	1.11
Light Beard-Brunet No. 4	8	11	4	1	..	..	..	1.44
Intermediate-Brunet No. 3	12	9	2	1	..	..	..	1.23
Intermediate-Brunet No. 4	11	9	3	1	..	..	..	1.15
Brunet No. 3-Brunet No. 4	15	6	3	..	..	..	..	.90
Average	11.47	8.20	3.00	1.20	.13	0	0	1.22

TABLE 125. RIFFIAN PIGMENT TYPES

MEAN VALUES OF THE COEFFICIENT OF VARIATION

Type	V.
Blond	5.12
Light eyes	5.16
Light beard	4.84
Intermediate	4.87
Brunet No. 1	4.71
Brunet No. 2	5.03
Brunet No. 3	4.51
Brunet No. 4	4.72
Mean	*4.87*
Total Rif	*5.02*

METRICAL ANALYSIS

Constants for twelve measurements and twelve indices in each of the eight types have been calculated for Riffians. Judging by the mean values of the coefficient of variation, the types are, on the average, more homogenous than the total Riffian series. In segregating them we have to a certain extent obtained natural groups. This statement applies to the brunet types especially, and the lighter the type becomes the more variable it is in its metric characters. The Light Eyes type is the most variable of all, probably because it represents a light eyed eastern group as well as a modified central blond division. The variability of the blond groups as a whole may thus indicate a diversity of origins, as well as reflect the fact that these groups are mixed ones and not pure blond, whereas the brunet groups are, in regard to pigment heredity, apparently unmixed.

When we come to analyze the means of these groups we find less justification for their separation. Differences are on the whole not great. In tabulating the differences between types and the expression of these differences in terms of the probable errors, I have omitted

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Brunet No. 1 and Brunet No. 2, partly to save space, partly because they are numerically the smallest, and partly because being dark brown in beard color they are not necessarily pure brunets, although they could not well have been admitted into the intermediate class.

No two types present an average difference of twice the square root of the sums of their probable errors. Metrically all types are so similar that, on the whole, as far as can be judged by the numbers used, they might as well have been sorted on the basis of chance.

The average dispersion of XP.E. shows a pattern close to Goring's chance array, with a mean value almost identical with that of the latter.

The most striking similarity is found to exist between the Blond type and Brunet No. 3, hardly to be expected typologically, but reminiscent of the similarity in distribution between pure blond beards, and light brown as opposed to dark brown eyes. While closest to the light brown eyed brunets, the blonds are most distant from the dark brown eyed type. The greatest difference actually, though not in terms of the probable error, is found between the Light Beard and Light Eyes types, indicating a difference of distribution, or a different origin for the light eyed. Both are equidistant from the Blonds. The Intermediates and two Brunet types are mutually quite similar. Light Eyes comes closer to Brunet No. 4 than does Light Beard, and Light Beard is nearer Brunet No. 3 than is Light Eyes.

Although on the whole these types show no significant inter-variation, in one measurement a statistically significant trend is found. This is in the nose breadth. The Blond and Light Beard types are the narrowest, the Light Eyes type and the dark brown eyed Brunets the broadest. Significant differences are found between Blond and Light Eyes, Blond and Intermediate, Blond and Brunet No. 4, Light Eyes and Light Beard, Light Eyes and Brunet No. 3, Light Beard and Intermediate, Light Beard and Brunet No. 4, and the two Brunet types; that is, in eight out of fifteen comparisons.

The nasal index shows that the Blond type is the most leptorrhine and the light brown eyed Brunet type the least so, despite the general similarity of these two types. Although the Brunet No. 3 nose is scarcely broader than that of the Blond type, its extreme divergence in the index is due to its shortness. Light Eyes and Brunet No. 4 have lower nasal indices than does Brunet No. 3 because of their considerable nose height. Although on the whole the nasal index does not vary to the extent of nose breadth, it serves equally in marking out the Blond type, which differs significantly from all others except the light bearded.

If we examine other measurements without regard to significance, we find that in total face height and upper face height the Blonds are longest faced, with others more or less graded, Brunet No. 3 in each case exceeding Brunet No. 4. Although the Blonds appear longest faced the other elements are so near them in this that no significance can be derived from the comparison.

Of the measurements, head breadth is one of the most constant. We cannot segregate any types on this basis, and the cephalic index is of no use to us. Head height, on the other hand, varies absolutely more than any other measurement of its class. It seems to indicate that Light Eyes and Brunet No. 4 are relatively high headed.

These two types and Intermediate are the tallest, and the light brown eyed the shortest, with the Blond type, as would be expected, at the 168 cm. mark.

In the bodily proportions there is no noteworthy segregation, but in the bi-iliac the Blond and Brunet No. 3 types come out narrowest through the hips with Light Eyes and Brunet No. 4 widest.

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To sum up the metrical analysis of the pigment types, our results are with one exception negative. Either the original types in the blend were very similar skeletally or else they have become so thoroughly mixed that they have produced a constant blend. Probably both statements are true. That blondism is of racial significance in this blend and not a variable in a single stock is indicated by the breadth and proportions of the nose. The blonds are clearly narrowest nosed and most leptorrhine, the light eyed brunets least leptorrhine, and the light eyed and dark eyed brunets broadest nosed. This evidence directly supports the theory of an original central blond stock in conjunction with a closely similar brunet one, and two eastern types, probably coming in together as elements in a blend, and distinguished by light eyes in conjunction with dark hair and by dark brown eyes.

In Algeria Armand Viré has made a study of the differences between blond and brunet Kabyles, in a series of 22 of the former and 43 of the latter. He does not state his criteria of blondism, but they are probably comparable to mine in that he has no or very few pure blonds, those so designated being mixed. These are his figures:

	Brunets	Blonds	D.	Blond–Brunet No. 4
Stature	169.76	168.43	−1.33	−1.52
Head length	186.50	182.35	−4.15	+ .21
Head breadth	143.34	145.08	+1.74	+ .87
Cephalic index	76.85	78.72	+1.87	+ .34
Bizygomatic	133.70	134.38	+ .68	+ .22
Cephalo-facial index *	93.28	92.62	− .66	− .51
Nose height	55.01	53.75	−1.26	+ .15
Nose breadth	36.42	35.08	−1.34	−1.15
Nasal index *	66.21	65.40	− .81	−2.43
Means			1.50	.82

At the right I have placed two columns, one showing Viré's differences, and another showing the differences between Blond and Brunet No. 4 of my series in the same criteria. I chose Brunet No. 4 instead of Brunet No. 3 in order to bring out the maximum difference, because Viré's brunets were clearly more comparable to the former than to the latter. Viré's types are much more distinctive than are mine. In seven out of nine criteria they differ from each other in the same direction as do mine. The chief differences between his types and mine are that both of his run shorter headed, and that the Algerian blonds are shorter nosed than the Riffian Blonds. The noses of the Kabylian blonds are smaller in all dimensions than those of the brunets. Let us compare his brunets with the Riffian Brunet No. 4, and his blonds with mine.

	Kabyles and Riffians Brunets D.	Kabyles and Riffians Blonds D.
Stature	+ .17	− .02
Head length	+8.31	+12.67
Head breadth	+2.20	+ 1.33
Cephalic index	−2.07	− 3.60
Bizygomatic	+2.23	+ 1.77
Cephalo-facial index *	+ .23	+ .38
Nose height	+ .06	+ 1.47
Nose breadth	−1.27	− 1.08
Nasal index *	−2.04	− 3.65
Means	2.06	2.89

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By comparing these tables it may be seen that geography is more important in determining type than is pigment. The brunets in the two places resemble each other more strongly than do the blonds, of whom both series tend to a greater leptorrhiny and smaller stature; in Kabylia the blond element seems to bear with it a brachycephalic tendency, resulting from shortness rather than breadth of the head, which has no parallel in the Rif. In this it is perhaps comparable to the Canarian blonds and to the Ghomara. The Brunet Kabyle type and Brunet No. 4 both show their affiliation to a Saharan type.

TABLE 126. ANALYSIS OF PIGMENT TYPES: CONTINGENCIES

COEFFICIENTS OF MEAN SQUARE CONTINGENCY BETWEEN THE EIGHT TYPES AND TWENTY MORPHOLOGICAL CRITERIA

Skin color	.26	Nasal tip thickness	.35
Hair form	.25	Nasal wings	.26
Hair texture	.24	Nasal profile	.25
Forehead slope	.25	Lips, integumental thickness	.26
Browridges	.31	Lips, membranous thickness	.24
Nasion depression	.24	Lips, eversion	.26
Nasal root height	.28	Chin prominence	.22
Nasal root breadth	.23	Chin, median and bilateral	.16
Nasal bridge height	.32	Lambdoid flattening	.23
Nasal bridge breadth	.20	Occipital disharmony	.12

Skin color. C = .26

	No.	Light F.	Light I. F.	Medium F.	Medium I. F.	Dark F.	Dark I. F.	Yellowish F.	Yellowish I. F.
Blond	41	33	26.98	8	12.01				
Light eyes	48	39	31.59	6	14.06	2	2.14		
Light beard	87	58	57.26	28	25.49	2	2.14	1	1.20
Intermediate	167	114	109.92	42	48.93	11	7.44		
Brunet No. 1	18	11	11.85	6	5.27	1	.80		
Brunet No. 2	33	19	21.72	13	9.67	1	1.47		
Brunet No. 3	36	13	23.69	18	10.55	4	1.60		
Brunet No. 4	41	23	26.98	17	12.01	1	1.83		

Hair form. C = .25

	No.	Straight F.	Straight I. F.	Low Waves F.	Low Waves I. F.	Deep Waves F.	Deep Waves I. F.	Curly F.	Curly I. F.
Blond	39	..	..	13	9.56	10	7.49	16	20.32
Light eyes	46	3	1.93	10	11.27	4	8.83	29	23.96
Light beard	86	3	3.61	29	21.07	20	16.52	34	44.80
Intermediate	163	9	6.84	31	39.94	26	31.30	97	84.92
Brunet No. 1	18	2	.75	5	4.41	6	3.46	5	9.38
Brunet No. 2	30	..	..	6	7.35	6	5.76	18	15.63
Brunet No. 3	33	2	1.38	7	8.09	7	6.34	17	17.19
Brunet No. 4	38	..	..	10	9.31	8	7.30	20	19.80

Hair texture. C = .24

	No.	Coarse F.	Coarse I. F.	Medium F.	Medium I. F.	Fine F.	Fine I. F.
Blond	40	..	..	34	20.67	6	8.96
Light eyes	48	2	8.19	34	36.43	12	10.75
Light beard	87	..	..	71	66.04	16	19.48
Intermediate	167	3	2.85	123	126.76	41	37.39
Brunet No. 1	18	1	.31	11	13.66	6	4.03
Brunet No. 2	33	..	..	24	25.05	9	7.39
Brunet No. 3	35	..	..	28	26.57	7	7.84
Brunet No. 4	41	2	.71	31	31.12	8	9.18

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Forehead slope. C = .25

	No.	Forward F.	Forward I. F.	Absent F.	Absent I. F.	sm. F.	sm. I. F.	+ F.	+ I. F.	++ F.	++ I. F.	Mean
Blond	41	..	..	1	.17	18	17.97	12	16.66	10	6.11	43.90
Light eyes	48	..	..	..	..	20	21.04	20	19.51	8	7.15	43.75
Light beard	87	..	..	..	..	38	38.13	40	36.36	9	12.96	41.68
Intermediate	167	..	..	..	..	75	72.76	66	67.46	25	24.72	42.47
Brunet No. 1	18	..	..	..	..	5	7.89	9	7.31	4	2.68	48.61
Brunet No. 2	33	..	..	..	..	13	14.46	14	13.41	6	4.91	44.69
Brunet No. 3	36	1	.08	1	.15	15	15.78	14	14.63	5	5.36	39.59
Brunet No. 4	41	..	..	..	..	22	17.97	16	16.66	3	6.11	38.42

Browridges. C = .31

	No.	Absent F.	Absent I. F.	sm. F.	sm. I. F.	sm. F.	sm. I. F.	+ F.	+ I. F.	++ F.	++ I. F.	+++ F.	+++ I. F.	Mean
Blond	41	..	..	1	.78	12	11.92	23	22.81	4	5.13	1	.17	45.12
Light eyes	48	1	.20	..	..	16	13.96	23	26.70	7	6.01	1	.20	45.05
Light beard	87	..	..	2	1.66	17	25.30	60	48.39	8	10.90	..	..	46.55
Intermediate	167	..	..	2	3.19	53	48.58	83	92.90	29	20.92	..	..	45.96
Brunet No. 1	18	..	..	..	..	10	5.24	8	10.01	..	..	..	..	36.11
Brunet No. 2	33	..	..	..	..	8	9.60	22	18.36	3	4.13	..	..	46.21
Brunet No. 3	36	1	.15	1	.69	13	10.47	17	20.02	4	4.51	..	..	41.32
Brunet No. 4	41	..	..	3	.78	8	11.92	26	22.81	4	5.13	..	..	44.82

Nasion depression. C = .24

	No.	Absent F.	Absent I. F.	sm. F.	sm. I. F.	sm. F.	sm. I. F.	+ F.	+ I. F.	++ F.	++ I. F.	+++ F.	+++ I. F.	Mean
Blond	40	1	.34	1	1.62	18	15.44	16	18.34	4	4.18	..	..	39.06
Light eyes	48	..	..	2	1.94	21	18.52	18	22.00	6	5.01	1	.10	41.41
Light beard	87	1	.74	3	3.52	36	33.58	38	39.88	9	9.09	..	..	40.38
Intermediate	166	2	1.42	6	6.72	67	64.06	77	76.10	14	17.34	..	..	40.06
Brunet No. 1	18	..	..	1	.73	6	6.95	7	8.25	4	1.88	..	..	45.14
Brunet No. 2	33	..	..	1	1.34	7	12.74	18	15.13	7	3.45	..	..	48.86
Brunet No. 3	36	..	..	3	1.46	12	13.89	19	16.50	2	3.76	..	..	39.92
Brunet No. 4	41	..	..	2	1.66	14	15.82	22	18.80	3	4.28	..	..	41.46

Nasal root height. C = .28

	No.	sm. F.	sm. I. F.	sm. F.	sm. I. F.	+ F.	+ I. F.	++ F.	++ I. F.	+++ F.	+++ I. F.	Mean
Blond	40	1	.17	3	4.09	27	28.49	8	7.16	1	.08	53.12
Light eyes	48	1	.20	4	4.91	34	34.18	9	8.60	..	..	51.82
Light beard	87	..	..	13	8.90	55	61.96	19	15.58	..	..	51.72
Intermediate	166	..	..	7	16.99	133	118.22	26	29.73	..	..	52.86
Brunet No. 1	18	..	..	3	1.84	11	12.82	4	3.22	..	..	51.39
Brunet No. 2	33	..	..	6	3.38	22	23.50	5	5.91	..	..	49.24
Brunet No. 3	36	..	..	4	3.68	27	25.64	5	6.45	..	..	50.70
Brunet No. 4	41	..	..	8	4.20	25	29.20	8	7.34	..	..	50.00

Nasal root breadth. C = .23

	No.	sm. F.	sm. I. F.	sm. F.	sm. I. F.	+ F.	+ I. F.	++ F.	++ I. F.	Mean
Blond	40	1	.17	29	25.24	10	13.48	..	..	31.93
Light eyes	48	1	.20	33	30.29	12	16.17	2	1.33	33.12
Light beard	87	..	..	60	54.91	24	29.31	3	2.41	33.62
Intermediate	166	..	..	91	104.77	71	55.92	4	4.60	36.90
Brunet No. 1	18	..	..	15	11.36	3	6.06	..	..	29.17
Brunet No. 2	33	..	..	20	20.83	13	11.12	..	..	34.85
Brunet No. 3	36	..	..	19	22.72	15	12.13	2	9.98	38.20
Brunet No. 4	41	..	..	29	25.88	10	13.81	2	1.14	33.54

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Nasal bridge height. C = .32

	No.	F.	mm. L. F.	F.	mm. L. F.	F.	+ L. F.	F.	++ L. F.	F.	+++ L.F.	Mean
Blond	40	..	..	3	1.88	20	27.21	17	10.75	..	..	58.75
Light eyes	48	1	.10	1	2.25	33	32.65	13	12.90	..	..	55.48
Light beard	87	..	..	5	4.08	54	59.17	28	23.37	..	..	56.61
Intermediate	166	..	..	4	7.79	114	112.91	47	44.60	1	.35	56.70
Brunet No. 1	18	2	.84	14	12.24	2	4.84	..	..	..	..	50.00
Brunet No. 2	33	2	1.55	27	22.44	4	8.86	..	..	..	..	51.52
Brunet No. 3	36	2	1.69	28	24.49	6	9.67	..	..	..	..	52.78
Brunet No. 4	41	3	1.92	29	27.89	9	11.01	..	..	..	..	53.66

Nasal bridge breadth. C = .20

	No.	F.	mm. L. F.	F.	mm. L. F.	F.	+ L. F.	F.	++ L. F.	Mean
Blond	40	..	..	22	18.51	17	19.79	1	1.62	36.83
Light eyes	48	1	.10	21	22.21	25	23.74	1	1.94	38.80
Light beard	87	..	..	40	40.25	44	43.04	3	3.52	39.49
Intermediate	166	..	..	72	76.80	84	82.12	10	6.72	40.66
Brunet No. 1	18	..	..	7	8.33	10	8.90	1	.73	41.67
Brunet No. 2	33	..	..	17	15.27	16	16.32	..	..	37.12
Brunet No. 3	36	..	..	17	16.66	16	17.81	3	1.46	40.28
Brunet No. 4	41	..	..	21	18.97	20	20.28	..	..	37.20

Nasal tip thickness. C = .35

	No.	F.	mm. L. F.	F.	mm. L. F.	F.	+ L. F.	F.	++ L. F.	Mean
Blond	40	1	.34	19	16.20	17	18.08	3	5.37	39.06
Light eyes	48	1	.41	19	19.44	21	21.70	7	6.45	42.97
Light beard	87	1	.74	46	35.24	35	39.33	5	11.69	37.79
Intermediate	166	1	1.42	52	67.25	76	52.43	37	22.30	47.52
Brunet No. 1	18	..	..	6	7.29	10	8.14	2	2.42	44.45
Brunet No. 2	33	..	..	16	13.37	17	14.92	..	..	37.88
Brunet No. 3	36	..	..	15	14.58	18	16.27	3	4.84	41.67
Brunet No. 4	41	..	..	17	16.61	18	18.53	6	5.51	43.28

Nasal wings. C = .26

	No.	Compressed F.	Compressed L. F.	Medium F.	Medium L. F.	Flaring F.	Flaring L. F.
Blond	40	19	12.94	21	25.28		
Light eyes	48	15	15.52	30	30.33	3	2.14
Light beard	87	36	28.14	50	54.98	1	3.89
Intermediate	167	47	54.01	108	105.53	12	7.46
Brunet No. 1	18	3	5.82	15	11.37		
Brunet No. 2	33	14	10.67	18	20.85	1	1.47
Brunet No. 3	36	6	11.64	28	22.75	2	1.61
Brunet No. 4	41	12	13.26	27	25.91	2	1.84

Nasal profile. C = .25

	No.	Concave F.	Concave L. F.	Straight F.	Straight L. F.	Convex F.	Convex L. F.	Concave-Convex F.	Concave-Convex L. F.
Blond	40	3	4.86	19	18.93	17	14.58	1	1.62
Light eyes	48	7	5.83	17	22.72	21	17.50	3	1.94
Light beard	87	11	10.57	38	41.18	35	31.72	3	3.52
Intermediate	166	18	20.17	74	78.58	67	60.52	7	6.72
Brunet No. 1	18	4	2.19	11	8.53	3	6.56		
Brunet No. 2	33	2	4.01	22	15.62	5	12.03	4	1.34
Brunet No. 3	36	6	4.38	23	17.04	7	13.12		
Brunet No. 4	41	6	4.98	18	19.41	16	14.95	1	1.66

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Lips, integumental thickness. C = .26

	No.	sm. F.	sm. L.F.	F.	sm. L.F.	+ F.	+ L.F.	++ F.	++ L.F.	Mean
Blond	41	..	..	6	5.74	35	34.04	..	..	46.34
Light eyes	48	..	..	9	6.73	35	39.85	4	1.32	47.40
Light beard	87	..	..	9	12.19	76	72.22	2	2.40	47.98
Intermediate	167	..	..	27	23.40	138	138.63	2	4.61	46.26
Brunet No. 1	18	..	..	2	2.52	16	14.94	..	..	47.22
Brunet No. 2	33	..	..	5	4.62	26	27.39	2	.91	47.73
Brunet No. 3	36	..	..	4	5.04	29	29.88	3	.99	49.31
Brunet No. 4	41	1	.09	4	5.74	36	34.04	..	..	46.65

Lips, membranous thickness. C = .24

	No.	Absent F.	Absent L.F.	sm. F.	sm. L.F.	F.	L.F.	+ F.	+ L.F.	++ F.	++ L.F	Mean
Blond	41	..	..	1	.87	22	21.68	17	16.54	1	1.57	36.28
Light eyes	48	1	.41	..	..	29	25.38	14	19.36	4	1.83	35.94
Light beard	87	1	.74	2	1.85	52	45.99	32	35.10	..	..	33.62
Intermediate	167	1	1.42	2	3.54	90	88.29	70	67.37	4	6.38	36.38
Brunet No. 1	18	..	..	..	..	10	9.52	7	7.26	1	.69	37.50
Brunet No. 2	33	..	..	1	.70	16	17.44	15	13.31	1	1.26	37.50
Brunet No. 3	36	1	3.06	2	.76	11	19.03	19	14.52	3	1.38	40.68
Brunet No. 4	41	..	..	2	.87	19	21.68	16	16.54	4	1.57	38.42

Lips, eversion. C = .26

	No.	Absent F.	Absent L.F.	sm. F.	sm. L.F.	+ F.	+ L.F.	++ F.	++ L.F.	Mean
Blond	41	10	9.75	16	18.98	15	11.40	..	..	28.06
Light eyes	48	16	11.41	16	22.22	16	13.35	..	..	25.00
Light beard	87	21	20.69	48	40.27	17	24.20	1	1.85	24.43
Intermediate	167	40	39.71	79	77.30	43	46.45	5	3.54	26.95
Brunet No. 1	18	5	3.97	10	8.33	2	5.01	1	.38	23.61
Brunet No. 2	33	7	7.85	16	15.27	10	9.18	..	..	27.24
Brunet No. 3	36	5	8.56	17	16.66	13	10.01	1	.76	31.95
Brunet No. 4	41	8	9.75	16	18.98	15	11.40	2	.87	29.27

Chin prominence. C = .22

	No.	sm. F.	sm. L.F.	F.	sm. L.F.	+ F.	+ L.F.	++ F.	++ L.F.	Mean
Blond	41	..	..	13	14.97	28	23.50	..	..	42.07
Light eyes	48	..	..	14	17.53	30	27.52	4	2.65	44.79
Light beard	87	..	..	33	31.77	45	49.87	9	4.80	41.04
Intermediate	167	2	1.06	57	60.98	100	95.73	8	9.22	42.22
Brunet No. 1	18	..	..	3	6.57	14	10.32	1	.99	47.22
Brunet No. 2	33	..	..	19	12.05	13	18.92	1	1.82	36.37
Brunet No. 3	36	..	..	18	13.15	17	20.64	1	1.99	38.20
Brunet No. 4	41	1	2.61	15	14.97	23	23.50	2	2.26	41.16

Chin, median and bilateral. C = .16

	No.	Median F.	Median L.F.	Bilateral F.	Bilateral L.F.
Blond	40	20	16.50	20	23.50
Light eyes	47	17	19.38	30	27.62
Light beard	87	33	35.88	54	51.12
Intermediate	167	59	68.87	108	98.13
Brunet No. 1	18	8	7.42	10	10.58
Brunet No. 2	33	15	13.61	18	19.39
Brunet No. 3	36	23	14.85	13	21.15
Brunet No. 4	40	18	16.50	22	23.50

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Lambdoid flattening. C = .23

	No.	Absent F.	Absent L. F.	sm. F.	sm. L. F.	+ F.	+ L. F.	++ F.	++ L. F.	+++ F.	+++ L. F.	Mean
Blond	41	8	10.36	8	7.14	14	15.15	11	8.10	..	..	42.07
Light eyes	48	12	12.13	5	8.36	18	17.73	12	9.48	1	.30	41.92
Light beard	87	25	21.98	13	15.15	37	32.14	11	17.18	1	.55	35.48
Intermediate	167	41	42.19	37	29.07	56	61.69	33	32.97	..	..	37.13
Brunet No. 1	18	4	4.55	1	3.13	8	6.65	5	3.55	..	..	44.44
Brunet No. 2	33	8	8.34	7	5.74	11	12.19	7	6.52	..	..	37.88
Brunet No. 3	36	7	9.10	3	6.27	19	13.30	6	7.11	1	.23	43.40
Brunet No. 4	41	14	10.36	8	7.14	11	15.15	8	8.10	..	..	32.92

Occipital disharmony. C = .12

	No.	Absent F.	Absent L. F.	sm. F.	sm. L. F.	+ F.	+ L. F.	++ F.	++ L. F.	Mean
Blond	41	31	33.86	3	.78	7	6.27	..	..	10.37
Light eyes	48	41	39.64	1	.92	6	7.34	..	..	7.93
Light beard	87	70	71.85	1	1.66	16	13.30	..	..	9.48
Intermediate	167	140	137.92	1	3.19	25	25.53	1	.35	7.94
Brunet No. 1	18	17	14.87	..	..	1	2.75	..	..	2.87
Brunet No. 2	33	25	27.25	2	.63	6	5.04	..	..	10.61
Brunet No. 3	36	30	29.73	1	.69	5	5.50	..	..	7.64
Brunet No. 4	41	35	33.86	..	..	6	6.27	..	..	7.32

ANALYSIS OF OBSERVATIONS

We have seen that comparison of the pigment types on the basis of measurements yields little in the way of results. The only dimension of the body tabulated which varied with constant significance was the only measurement in the lot which is concerned with a soft part of the body and not directly with the skeleton. Hence, we may find it profitable to determine whether pigment, being a substance found in association with the soft parts, may not be more conclusively linked with them than with bone. Contingencies have been made between the eight types and twenty observations, some of these of soft parts alone. Means have been calculated for the quantitative observations.

Examining the list of coefficients, one is struck with the fact that so many criteria are associated with pigment types to the degree of .25 or thereabouts, instead of being utterly independent of them or else strongly associated. An examination of the contingency tables shows most of these .25 contingencies to be significant. The highest contingency is with nasal tip thickness, just as the most significant difference in the measurements was with nose breadth. In the nasal observations dependent upon the shape of the nasal skeleton the high bridge and root, with great convexity, seem to go with the blond type, whereas the breadths show smaller differences, with blonds narrowest.

However, let us examine the contingencies separately. In skin color we find a definite trend, with Blond and Light Eyes lightest, and Brunet No. 3 darkest. Brunet No. 4 tends in a dark direction, and the rest seem little affected. In hair form the Blond and Light Beard types have far less curly and more low and deep waves than have the others. Light Eyes and Intermediate lean the opposite way, while curiously enough the Brunet types themselves show indifference.

In hair texture the Blonds come out the least fine, with the Light Beards trailing them, and all other types relatively quiescent. Light Eyes and Intermediate are slightly but not significantly on the fine side. The contingency of .24, like others of the same magnitude,

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expresses the efforts of the Blond type to segregate itself from the general bulk of the relatively homogenous others.

In forehead slope, another low contingency, we see the Blonds emerging with more retreating foreheads than the others, and Brunet No. 4 come out with less than the average slope. The other six types gravitate about the norm. The browridges present a perplexing problem, with a high contingency and no easy interpretation. On the whole, the lighter types have heavier browridges and the light brown eyed brunets weak ones, with the dark brown brunets running strong, comparable to the blonds. This interpretation is based not upon the table itself but upon the means.

Coming to the nose, let us first take the heights. As we go down, their significance in connection with blondism increases, for the coefficient for the nasion depression is .24, for the root height .28, and for the bridge height .32. Judging by the means, the blonds are the most distinctive, since they attain the least nasion depression and the greatest height in both root and bridge, especially the latter. Differences which cause the significant coefficients are to be found in the sm and + columns in the lower contingencies. The extremes seem to vary little between types in these, whereas in the nasal bridge height the main differences are between extremes.

The nasal root breadth and bridge breadth present lower coefficients than do the criteria of height. Unlike the latter, the coefficient for the nasal root is lower than that for its height. In the root breadth, the Blonds, Light Eyes, and Light Beards differ considerably from the expected frequencies in a narrow direction, whereas the Intermediates show the opposite trend. Brunet No. 4 tends to run narrow and Brunet No. 3 broad, compared to the expected frequencies.

The nasal bridge breadth shows the intermediate type broad and the blond slightly narrow. On the whole, this coefficient is probably not significant.

The nasal tip thickness, our highest contingency, shows excesses in favor of narrowness in connection with the Blond and Light Beard types, the Intermediates running strongly in the opposite direction. No other types seem to present noteworthy variations, hence the high coefficient is dependent upon the extraordinary divergences of these three alone. The nasal wings, with a coefficient in the usual range, look in the table as significant as the tip thickness. The Blonds and Light Beards are the most compressed, the Intermediates and both types of light brown eyed brunets least so.

In the nasal profile all types have about an even share of concaves and of concavo-convexes. The great difference comes in the straights and convexes. The first three Brunet types are preponderantly straight, and the mixed lights and Brunet No. 4 convex.

On the whole, the Blonds seem narrowest nosed and highest nosed, with most compressed wings. The Intermediate and light eyed brunet types seem most variant from this, with the dark eyed brunets on the whole closer to the Blond. The Light Beard type follows the Blond closely, and the light eyed type follows Brunet No. 4.

Let us now turn to the lips. In integumental thickness one can see little variation from the independence frequencies. The coefficient of .26 is largely due to the variations in the ssm and ++ category, although Blond and Light Eyes have a slight excess of sm's, and Light Beard a corresponding deficit. The significant excesses in the ++ category belong to Light Eyes and to Brunets No. 2 and No. 3. Judging from the means, Blonds, Intermediates, and Brunet No. 4 run thinnest, with Brunet No. 3 distinctly thickest.

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In membranous thickness, although all lighter types run thinner than do all Brunet types, the Blonds are not the thinnest, the palm being held by the Light Beard type, which in other ways has been seen to exceed the Blonds in their own direction. Both the Light Beards and the Light Eyes show considerable variations from the independence frequencies. In eversion too, the principal variants are the same. Blonds, if anything, come out higher in the + category than expected. As with the other two lip observations, Brunet No. 3 is the most pronounced, with the greatest eversion. Brunet No. 4 all along has been thinner and is now less everted than the light brown eyed brunet type.

In regard to the prominence of the chin, the Blond type seems to show an excess in the + category, repeated to lesser degree by the Light Eyes type. Intermediate likewise shows this, whereas the Light Beard type, strong in the ++ class, is weak in the + category, and Brunets No. 2 and No. 3 fall in the weak chinned direction. The Brunet No. 1 type comes out very strong, but this group is small and unstable. On the whole, the light eyed brunets are the weakest chinned, and the most prominent chinned are various mixed blond types and the dark brown eyed brunets. The size of the contingency is not, however, impressive. In the division of chins into median and bilateral, the coefficient is too small to be taken seriously. In the array of frequencies the light eyed brunets and the Blonds show a trend toward median, and the Intermediate type towards bilateral. This follows the distribution of these types of chin.

I have included two observations on the lambdoid region, lambdoid flattening and occipital disharmony, since both are typical of our series, in order to see if they represent mixture, or go with some definite type. Lambdoid flattening is disassociated from the dark brown eyed brunets, and apparently slightly associated with the light brown eyed ones. It goes most strongly with Light Eyes and Blonds, and is disassociated with Light Beards. Occipital disharmony apparently has nothing to do with differences between types since its occurrence, frequent as it is, takes the form of a chance distribution. On the whole, all that we can say which has any clear meaning is that the dark brown eyed type did not bring in lambdoid flattening, and that occipital disharmony is of no immediate assistance in the solution of our problem.

Summary: In analyzing the eight types created on a basis of eye and beard color, we find on the whole that the measurements reveal no significant segregation, that statistically the types differ from each other no more than if they had been selected of the basis of chance. This may be due in part to a long and thorough mixture, and in part to the small size of my groups. The former is probably the more valid reason. On the other hand, a consistently significant difference is found in one measurement — nose breadth. The Blonds are definitely narrowest nosed and the light brown eyed brunets definitely broadest. Even the latter, however, are still well within the European range. Certain other differences, most of them individually significant, reflect differences in areal distribution. The tall stature of the Light Eyes and Brunet No. 4 types goes with the stature of the eastern Rif and of the Maritime tribes; the relatively moderate stature of the Brunet No. 3 type, and the intermediate condition of the Blond, is indicated in the stature constants for the middle Rif. Beni Amart is somewhat taller than the other central Riffian tribes because the Brunet No. 3 element is weakest in it. The generalized Intermediate type is largely a reflection of the eastern area.

Other differences, statistically of little importance but aligned in a definite direction,

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indicate that the Blonds are longest faced and the Brunets shortest, with transitional types ranged between; that the broad bigonial is eastern, being connected with the dark eyed brunets.

TABLE 127. METRICAL CONSTANTS OF PIGMENT TYPES, SENHAJA

	No.	M.	σ	V.
Stature				
Lights	49	166.86 ± .44	4.53 ± .31	2.71 ± .18
Brunet No. 4	46	167.56 ± .52	5.22 ± .37	3.12 ± .22
Head length				
Lights	49	193.43 ± .58	6.01 ± .41	3.11 ± .21
Brunet No. 4	46	193.54 ± .62	6.26 ± .44	3.23 ± .23
Head breadth				
Lights	49	145.08 ± .49	5.11 ± .35	3.52 ± .24
Brunet No. 4	46	143.61 ± .46	4.61 ± .32	3.21 ± .23
Cephalic index				
Lights	49	75.08 ± .26	2.73 ± .19	3.64 ± .25
Brunet No. 4	46	74.28 ± .26	2.62 ± .18	3.53 ± .25
Bigonial				
Lights	49	101.55 ± .68	7.08 ± .48	6.97 ± .47
Brunet No. 4	46	104.20 ± .53	5.30 ± .37	5.09 ± .36
Total face height				
Lights	49	122.88 ± .60	6.19 ± .42	5.04 ± .34
Brunet No. 4	46	122.07 ± .50	4.98 ± .35	4.08 ± .29
Upper face height				
Lights	49	71.82 ± .42	4.35 ± .30	6.06 ± .41
Brunet No. 4	46	71.65 ± .44	4.40 ± .31	6.14 ± .43
Nose height				
Lights	49	54.67 ± .36	3.76 ± .26	6.88 ± .47
Brunet No. 4	46	53.52 ± .40	3.99 ± .28	7.46 ± .52
Nose breadth				
Lights	49	34.41 ± .23	2.37 ± .16	6.90 ± .47
Brunet No. 4	46	34.52 ± .30	2.99 ± .21	8.66 ± .61
Nasal index				
Lights	49	63.16 ± .54	5.63 ± .38	8.91 ± .61
Brunet No. 4	46	65.02 ± .86	8.60 ± .60	13.23 ± .93

COMPARISONS, LIGHTS-BRUNET NO. 4 AND BRUNET NO. 4, RIF AND SENHAJA

	Senhaja, Lights and Brunet No. 4		Brunet No. 4, Rif and Senhaja	
	D.	XP.E.	D.	XP.E.
Stature	.70	1.03	2.37	2.93
Head length	.11	.13	1.27	1.35
Head Breadth	1.47	2.19	1.93	3.27
Cephalic index	.80	2.16	.50	1.35
Bigonial	2.65	3.08	3.09	3.64
Total face height	.81	1.16	1.64	1.78
Upper face height	.17	.28	.50	.69
Nose height	1.15	2.13	1.55	2.50
Nose breadth	.11	.29	.63	1.58
Nasal index	1.86	1.81	.85	.82
Means	.98	1.43	1.43	1.99

	Mean V.
Senhaja, Lights	5.37
Senhaja, Brunet No. 4	5.78
Rif, Brunet No. 4	5.60

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In comparing the Riffians with Europeans generally considered to be of Nordic type, we found that our North Africans ran to broader minimum frontals and higher heads. When a blond Riffian type is segregated, these differences remain as great as ever. As far as I can see they are the only differences which separate the bulk of the Riffians skeletally from the North Europeans of the early Christian era. These differences are not sufficient to merit classifying them as separate types; in all essential features they are one, and being one, it is difficult to say which is the original in these two dimensions.

When we look to the observations this identification becomes even more assured. The blonds run definitely to straighter, less fine hair; to less infantile foreheads and heavier browridges than the accompanying brunet type; to higher, more concave, thinner tipped noses, with more compressed alae; and to slightly more prominent chins. In lip thickness there is also some reduction, but all of the types represented are essentially thin lipped.

There appears in the eastern Rif, and also in what we have chosen to call the western Maritime tribes, a group characterized by dark brown eyes and black hair; relatively tall, and skeletally very similar to the North European and Central Riffian Blond types, except that it is larger all around, slightly shorter faced and broader nosed, although in nose length it is nearly the same. The nasal skeleton is lower and the tip less refined. In comparison with the brunet type associated with the central Rif, it presents more rugged features, thinner lips, and lighter skin. In hair form and texture it is about the same.

The Intermediate types follow various dispositions. The Light Bearded grouping is closest to the Blond, and in some ways intermediate between it and the light brown eyed brunet; in some features it exceeds the Blond type in its own direction. The Light Eyes type follows the Brunet No. 4 type closely in many features, in others it is linked more with the Blond. The Intermediate type is just what its name implies, a general residuum, or what will ultimately result if the Riffians completely digest, without outside mixture, their present racial elements. The brown bearded dark eyed types known as Brunet No. 1 and Brunet No. 2 are admitted failures. Sometimes they link with No. 3 and No. 4 by eye color; at other times they appear aberrant. This is because of their unsatisfactory nature in the beginning as well as of their small size. In making this analysis I have perhaps used too many types, cluttering the tabulations with intermediate deadwood which lowers the numerical expressions of differentiation. At any rate, most of the observations show definite associations, and at least one of the measurements shows a valid segregation. In using metrical differences in my conclusions I am taking advantage of the more significant analysis of tribal distribution; when the two are employed together definite results as described above evolve.

SENHAJA, METRICAL ANALYSIS

In seriating the Riffian types we discovered which of the criteria are likely to show differences of racial significance; hence, by combining this experience with a knowledge of the tribal variations within the Senhaja we may select criteria for seriation, rather than clog the latter part of this study with sterile tabular material.

Since the ground has already been broken in the Rif, it is unnecessary to use all of the types, most of which, indeed, are numerically too poorly represented in the Senhaja to justify seriation. Brunet No. 4 is large enough to use, and by combining the three lightest types, Blond, Light Eyes, and Light Beard, we may obtain a class designated as Lights with

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which to compare it. Unfortunately there are not enough light brown eyes to yield a type based on this quality.

In comparing the two types selected, we find the greatest difference in the bigonial diameter, with significant differences likewise appearing in head breadth, cephalic index, and nose height. The dark brown eyed brunets are taller than the light type, as in the Rif; they are more dolichocephalic in a greater degree than in the Rif, with the difference dependent entirely upon a narrower head breadth; they exceed the light types greatly in the bigonial, and owe their lesser leptorrhiny to shorter rather than narrower noses. The usual gradation in face lengths is present, though unimportant.

The greater variability of the Brunet No. 4 over the Lights, as expressed by the mean coefficient of variation, reverses the Riffian condition and indicates, in conjunction with the individual criteria, a lesser purity for the former than that of the corresponding Hamitic or Saharan type in the Rif.

Since the Senhajan Lights are equivalent to no one Riffian type, direct comparison is not feasible, yet it appears that the Lights in both regions vary in the same direction. It is interesting to note that the Senhajan Brunet No. 4 is more different from the Riffian Brunet No. 4 than from the Lights in its own group; indicating the superiority of regions over types as means of differentiation, a difference in purity of the two Hamitic groups, or both.

TABLE 128. PIGMENTATION ANALYSIS: SENHAJA

COEFFICIENTS OF MEAN SQUARE CONTINGENCY

	With Eye Color	With Beard Color		With Eye Color	With Beard Color
Eye color and beard color	.46				
Skin color	.43	.35	Nasal bridge, height	.33	
Hair form	.51	.37	Nasal tip, thickness	.36	.27
Hair texture	.22	.22	Nasal wings	.36	
Forehead slope	.64		Lips, eversion	.43	
Browridges	.63		Chin prominence	.37	
Eyes, obliquity	.39				

Eye color and beard color. C = .46

	No.	Light F.	Light L.F.	Light Brown F.	Light Brown L.F.	Reddish-Brown F.	Reddish-Brown L.F.	Dark Brown F.	Dark Brown L.F.	Black F.	Black L.F.
+++Light	5	..	..	4	.89	1	.70				
++Light	19	2	.53	6	3.40	3	2.65	2	3.61	6	8.76
Even	41	2	1.11	8	7.52	8	5.87	10	7.98	13	19.40
++Dark	18	..	..	3	3.22	5	2.52	3	3.42	7	8.37
+++Dark	1	..	..	..	..	..	..	1	.19		
Light brown	18	..	..	3	3.22	2	2.52	6	3.42	7	8.37
Dark brown	71	1	1.96	8	12.52	6	9.78	10	13.30	46	32.44
Black	6	..	..	..	..	..	..	2	1.14	4	2.78

Eye color and skin color. C = .43

	No.	Light F.	Light L.F.	Medium F.	Medium L.F.	Dark F.	Dark L.F.	Yellowish F.	Yellowish L.F.
+++Light	5	4	1.26	1	1.54				
++Light	19	8	4.78	7	5.84	4	8.28		
Even	41	11	10.31	16	12.60	13	17.86	1	.23
++Dark	18	5	4.52	8	5.53	5	7.84		
+++Dark	1	1	.25						
Light brown	18	4	4.53	7	5.53	7	7.84		
Dark brown	71	12	17.85	16	21.82	43	30.94		
Black	6	..	..	..	..	6	2.61		

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Beard color and skin color. C = .35

	No.	Light F.	Light L. F.	Medium F.	Medium L. F.	Dark F.	Dark L. F.	Yellowish F.	Yellowish L. F.
Light	5	2	1.24	3	1.56				
Light brown	32	11	8.04	10	9.83	10	13.94	1	.18
Reddish-brown	25	12	6.28	7	7.68	6	10.89		
Dark brown	34	7	8.55	13	10.45	14	14.82		
Black	83	13	20.86	22	25.50	48	36.60		

Eye color and hair form. C = .51

	No.	Straight F.	Straight L. F.	Low Waves F.	Low Waves L. F.	Deep Waves F.	Deep Waves L. F.	Curly F.	Curly L. F.	Frizzly F.	Frizzly L. F.
+++Light	5	1	.14	..	..	2	1.50	2	2.20		
++Light	19	..	..	7	4.29	5	5.69	7	8.37		
Even	40	1	1.13	3	9.04	13	11.98	23	17.63		
++Dark	18	1	.51	5	4.07	6	5.39	6	7.93		
+++Dark	1	1	.03								
Light brown	17	..	..	2	3.84	3	5.09	12	7.49		
Dark brown	71	1	2.00	23	16.04	21	21.26	25	31.29	1	.40
Black	6	..	..	..	..	3	1.80	3	2.64		

Beard color and hair form. C = .37

	No.	Straight F.	Straight L. F.	Low Waves F.	Low Waves L. F.	Deep Waves F.	Deep Waves L. F.	Curly F.	Curly L. F.	Frizzly F.	Frizzly L. F.
Light	5	..	..	2	.45	..	..	3	2.20		
Light brown	31	2	.88	12	7.01	9	9.28	8	13.66		
Reddish-brown	25	..	..	3	5.65	8	7.49	14	11.02		
Dark brown	34	1	.96	9	7.68	8	10.18	16	14.98		
Black	82	2	2.32	14	18.53	28	24.55	37	36.14	1	.46

Eye color and hair texture. C = .22

	No.	Coarse F.	Coarse L. F.	Medium F.	Medium L. F.	Fine F.	Fine L. F.
+++Light	5	..	..	4	3.93	1	.93
++Light	19	1	.53	13	14.94	5	3.52
Even	40	1	1.12	28	31.46	11	7.42
++Dark	18	1	.50	14	14.60	3	3.34
+++Dark	1	..	..	1	.79		
Light brown	18	1	.50	14	14.16	3	3.34
Dark brown	71	1	1.99	62	55.84	8	13.16
Black	6	..	..	4	4.72	2	1.11

Beard color and hair texture. C = .22

	No.	Coarse F.	Coarse L. F.	Medium F.	Medium L. F.	Fine F.	Fine L. F.
Light	5	1	.14	4	3.93		
Light brown	31	..	..	26	24.38	5	5.75
Reddish-brown	25	..	..	19	19.66	6	4.63
Dark brown	34	1	.96	24	26.74	9	6.30
Black	83	3	2.33	67	65.28	13	15.39

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Eye color and forehead slope. C = .64

	No.	Forward F.	Forward L.F.	Absent F.	Absent L.F.	sm. F.	sm. L.F.	+ F.	+ L.F.	++ F.	++ L.F.	+++ F.	+++ L.F.
+++Light	5	..	..	..	..	4	2.57	..	..	1	.39	1	.01
++Light	19	..	..	..	..	9	9.76	8	6.37	2	1.49		
Even	41	..	..	2	1.60	26	20.84	12	13.74	1	3.21		
++Dark	18	..	..	1	.70	10	9.25	6	6.03	1	1.41		
+++Dark	..	..	..	..	..	..	..	..	..	..	..	1	.01
Light brown	18	..	..	2	.70	9	9.25	5	6.03	2	1.41		
Dark brown	71	4	1.98	2	2.78	33	36.49	25	23.80	7	5.55		
Black	6	1	.17	..	..	1	3.08	4	2.01				

Eye color and browridges. C = .63

	No.	Absent F.	Absent L.F.	sm. F.	sm. L.F.	sm. F.	sm. L.F.	+ F.	+ L.F.	++ F.	++ L.F.	+++ F.	+++ L.F.
+++Light	5	..	..	..	..	2	1.34	2	2.49	1	1.06		
++Light	19	..	..	..	..	6	5.09	7	9.45	6	4.03		
Even	41	..	..	1	.46	11	10.99	19	20.39	10	8.70		
++Dark	18	..	..	..	..	6	4.83	8	8.95	4	3.82		
+++Dark	1	..	..	..	..	..	..	..	..	..	..	1	.01
Light brown	18	..	..	..	..	6	4.83	11	8.95	1	3.82		
Dark brown	71	1	.40	1	.79	15	19.04	40	35.30	14	15.07		
Black	..	..	..	..	..	2	1.47	2	2.98	2	1.27		

Eye color and obliquity. C = .39

	No.	Absent F.	Absent L.F.	sm. F.	sm. L.F.	+ F.	+ L.F.	++ F.	++ L.F.
+++Light	5	4	3.63	1	.84				
++Light	19	14	13.80	4	3.18	1	1.70		
Even	41	31	29.78	8	6.87	1	3.66	1	.69
++Dark	18	13	13.07	3	3.02	2	1.61		
+++Dark	1	1	.73						
Light brown	18	15	13.07	1	3.02	1	1.61	1	.30
Dark brown	71	50	51.56	13	11.90	7	6.35	1	1.19
Black	6	2	4.36	..	..	4	.54		

Eye color and nasal bridge height. C = .33

	No.	sm. F.	sm. L.F.	sm. F.	sm. L.F.	+ F.	+ L.F.	++ F.	++ L.F.	+++ F.	+++ L.F.
+++Light	5	..	..	1	.42	2	3.03	1	1.35	1	.17
++Light	19	..	..	..	..	14	11.53	5	5.12		
Even	41	..	..	3	3.46	25	24.88	13	11.06		
++Dark	18	..	..	3	1.52	9	10.92	5	4.85	1	.61
+++Dark	1	..	..	..	..	..	..	1	.27		
Light brown	17	..	..	3	1.43	10	10.31	4	4.58		
Dark brown	71	1	.40	4	5.98	45	43.08	17	19.15	4	2.39
Black	..	..	..	1	.50	3	3.64	2	1.62		

Eye color and nasal tip thickness. C = .36

	No.	sm. F.	sm. L.F.	sm. F.	sm. L.F.	+ F.	+ L.F.	++ F.	++ L.F.	+++ F.	+++ L.F.
+++Light	5	..	..	3	1.94	1	1.88	1	1.12		
++Light	19	..	..	5	7.36	12	7.15	2	4.27		
Even	41	1	.23	15	15.89	16	15.43	9	9.21		
++Dark	18	..	..	9	6.98	3	6.78	6	4.04		
+++Dark	1	..	..	1	.38						
Light brown	17	..	..	5	6.59	9	6.40	3	3.82		
Dark brown	71	..	..	31	27.52	24	26.72	15	15.96	1	.40
Black	6	..	..	..	..	2	2.26	4	1.35		

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Beard color and nasal tip thickness. C = .27

	No.	---. F.	---. L.F.	---. F.	---. L.F.	+ F.	+ L.F.	++ F.	++ L.F.	+++ F.	+++ L.F.
Light	5	..	..	1	1.94	4	1.88				
Light brown	32	..	..	13	12.40	13	12.04	6	7.19		
Reddish brown	25	..	..	12	9.69	9	9.41	4	5.61		
Dark brown	33	1	.18	15	12.79	9	12.42	8	7.41		
Black	83	..	..	28	32.11	32	31.24	22	18.65	1	.47

Eye color and nasal wings. C = .36

	No.	Compressed F.	Compressed L.F.	Medium F.	Medium L.F.	Flaring F.	Flaring L.F.
+++Light	5	3	1.35	2	2.84		
++Light	19	4	5.12	15	10.78		
Even	41	11	11.06	27	23.06	3	6.68
++Dark	18	4	4.85	8	10.21	6	2.93
+++Dark	..	..	..	1	57		
Light brown	17	3	4.58	13	9.65	1	2.77
Dark brown	71	22	19.15	33	40.29	16	11.57
Black	6	1	1.62	2	3.40	3	.98

Eye color and lips, evasion. C = .43

	No.	Absent F.	Absent L.F.	---. F.	---. L.F.	+ F.	+ L.F.	++ F.	++ L.F.
+++Light	5	..	..	2	1.70	2	2.04	1	.64
++Light	19	5	2.34	10	6.47	4	7.75		
Even	41	4	5.04	12	13.97	21	16.72	4	5.27
++Dark	18	3	2.21	3	6.13	9	7.34	3	2.31
+++Dark	1	1	.12						
Light brown	18	1	2.21	8	6.13	7	7.34	2	2.31
Dark brown	71	8	8.73	26	24.20	28	28.96	9	9.12
Black	6	..	..	..	..	2	2.45	4	.77

Eye color and chin prominence. C = .37

	No.	---. F.	---. L.F.	---. F.	---. L.F.	+ F.	+ L.F.	++ F.	++ L.F.
+++Light	5	..	..	3	2.32	2	2.54		
++Light	19	..	..	7	8.81	12	8.61		
Even	41	1	.46	16	19.01	22	20.84	2	.69
++Dark	18	..	..	10	8.35	7	9.11	1	.30
+++Dark	1	..	..	..	..	1	.51		
Light brown	18	..	..	7	8.35	11	9.15		
Dark brown	71	..	..	36	32.92	35	36.09		
Black	6	1	.07	4	2.78	1	3.05		

ANALYSIS OF OBSERVATIONS

Since the total number of the Senhajan series is smaller than that of the Riffians, and since the types segregated in the latter group are too small numerically to justify their own use, I have chosen the method of comparing morphological characters likely to vary in blondism directly with eye color, and in cases where it seems advisable, with beard color as well. I have chosen eye color as the standard rather than beard color, since the former alone shows the differences between the two fundamental brunet types.

On the whole, a higher contingency is found than exists between Riffian types and the same criteria. This may be due to more recent admixture in the Senhaja, or to a more in-

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dicative choice of criteria. It is of course partly due to the smaller size of the Senhajan sample. In the Senhajan contingencies the six black eyed individuals sometimes sway the table so as to yield a higher contingency than if they were omitted. In the Riffian contingencies the four black eyed individuals have been omitted, but if included would influence the contingencies in but three criteria, as follows:

	C, Without black eyes	C, With black eyes
Skin color	.29	.30
Forehead slope	.25	.28
Nasal profile	.25	.29

The tendency of the four black eyed individuals in these criteria is toward a medium skin color, a + forehead slope, and a concave nasal profile. In the other criteria the four followed the distribution of the total series so perfectly as not to alter the coefficient obtained when they were excluded.

Let us analyze the Senhajan contingencies. Light eyes definitely go with light beards, from the evenly mixed eyes up to those almost pure light. The darker shades of mixture and light brown eyes show normal distributions of beard color, while the dark brown and black eyes are definitely associated with black beards.

In skin color, all eyes above light brown tend to lighter than expected skin colors; light brown is intermediate, and dark brown and black eyes go with dark skin color. In this as in all criteria analyzed for both, the beard color is less significant than the eye color. Reddish brown, light brown, and light beards run to light skins, dark brown beards are intermediate, and black beards go with dark skins.

In hair form the evenly mixed and light brown eyed individuals are curliest; the dark brown eyed are least so, differing from the black eyed, whose hair runs to deep waves. In comparing hair form with hair color we find that the lighter hair runs the least curly and reddish-brown the most, whereas the darker hair shades show little difference from the average of the group. The deductions from this evidence are that the blonds and the Brunet No. 4 invaders are neither very curly haired, the latter character going with the light brown eyed brunets and with certain types of mixture, rufous and evenly mixed of eye.

In hair texture no differences indicate significant associations between this observation and either eye color or beard color.

In forehead slope and in browridges the high coefficients are caused by the one aberrant individual with +++ dark eyes. Were it not for him these contingencies would appear far less valid. In the forehead slope the even eyes show the least incline, and the dark brown and black eyed types have what forward slopes are present, an infantile character often associated with certain types of Negro. In browridges the differences appear very slight indeed. There is a slight, probably insignificant, tendency for light brown eyed individuals to have relatively weak browridges, and for dark brown eyed ones to cluster about +. If we discount the +++ individual this observation is probably of no significance.

In eye obliquity, which we have previously observed to be strongest in the Senhajan route of invasion, all eye color categories except the two darkest have more than the expected frequencies of absence. Dark brown and black eyes, especially the latter, brought it in.

In the Rif the nasal bridge height was one of the most important means of distinguishing the blond types. In the Senhaja, however, the constants vary so little from the independence

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frequencies that similar distinctions cannot be made. In nasal tip thickness, another prize criterion of the Rif, little more can be distinguished, in comparison with both eye and beard. In the eye color, +++ light runs thin, ++ light runs to +, as does light brown, and black runs to ++. Dark brown eyes show a division between a narrow nosed contingent and one fulfilling expectations in the broader categories; ++dark eyes run the same way. In comparison with the beard color, black beards go with broad nasal tips, whereas the thin tips are connected more closely with the dark and reddish-brown beards than with those of lighter hue.

TABLE 129. METRICAL CONSTANTS OF PIGMENT TYPES, GHOMARA

	No.	M.	σ	V.
Stature				
Lights	34	164.94 ± .68	5.88 ± .48	3.56 ± .29
Darks	35	165.34 ± .59	5.20 ± .42	3.14 ± .25
Head length				
Lights	34	189.41 ± .74	6.40 ± .60	3.38 ± .28
Darks	35	190.72 ± .81	7.09 ± .57	3.72 ± .30
Head breadth				
Lights	34	146.82 ± .53	4.62 ± .38	3.15 ± .26
Darks	35	147.26 ± .53	4.69 ± .38	3.18 ± .26
Cephalic index				
Lights	34	77.65 ± .34	2.98 ± .24	3.84 ± .31
Darks	35	77.26 ± .41	3.64 ± .29	4.71 ± .38
Bigonial				
Lights	34	104.53 ± .67	5.80 ± .47	5.55 ± .45
Darks	35	102.33 ± .81	7.13 ± .57	6.97 ± .56
Nose height				
Lights	34	54.15 ± .42	3.60 ± .29	6.65 ± .54
Darks	35	53.60 ± .50	4.35 ± .35	8.12 ± .65
Nose breadth				
Lights	34	33.79 ± .35	3.01 ± .25	8.91 ± .73
Darks	35	34.28 ± .26	2.26 ± .18	5.93 ± .48
Nasal index				
Lights	34	62.62 ± .75	6.51 ± .53	10.40 ± .85
Darks	35	64.37 ± .74	6.45 ± .52	10.20 ± .82

COMPARISON, LIGHTS AND DARKS

	D.	XP.E.	Mean V.	
Stature	.40	.44	Lights, 5.68	Darks, 5.75
Head length	1.31	1.19		
Head breadth	.44	.59		
Cephalic index	.39	.74		
Bigonial	2.20	2.10		
Nose height	.55	.85		
Nose breadth	.49	1.11		
Nasal index	1.75	1.67		
Means	.94	1.09		

In nasal wings the lightest eyed class is on the compressed side; ++ light and evenly mixed eyes show their quality by lumping at medium, as do the light brown eyes; ++ dark and black run to flaring, whereas dark brown eyes exceed the normal in both directions with a depression in the middle, indicating again their bimodal nature.

In lip eversion, the ++ light class comes out least, and the black eyed group most

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everted. Other tendencies are towards homogeneity, with the evenly mixed eyes, and a slight bimodality with the greater tendency towards eversion, in the case of the ++ dark.

In chin prominence, the lighter eyed and light brown eyed types are most pronounced, and the black least so. The ++ dark and dark brown are moderately recessive, less so than the black eyed group.

Summary: The general conclusions deduced in the Rif hold true here. The blonder types run lighter skinned, more sloping in forehead, higher and narrower nosed, thinner lipped, and more prominent in chin protrusion than the others. The extremes of these characters do not always go with the lightest, although usually falling within the three lightest categories. Although the differences between pigment types are apparently greater here than in the Rif the blond type is not for that reason purer. Certain of the brunet types are genetically farther from it.

The light eyed brunets again assume their characteristic form; curlier haired than the others, intermediate in skin color, and running closer in general to the blonds than to the dark brown and black eyed brunets. The relatively finer noses, thinner lips, and better chins of this type indicate that the darker types are more different from the blonds than they are in the Rif, rather than that the light brown eyed type is more similar. The dark brown eyed and black eyed types bring in the characteristic Hamitic element, but a negroid one as well. Here one can in certain characters pick out definite negroid types associated with these traits, which cannot be done in the Rif. The negroid element is stronger in the Senhaja, where owing to similarity in hair and eye color it becomes confused, in a pigment study, with the Saharan type.

GHOMARA, METRICAL ANALYSIS

In the Ghomara we can expect to arrive at less decisive results than in the Rif and Senhaja for two reasons: lack of internal regional analysis, and paucity of subjects. It is almost futile to subdivide this series for the purpose of seriation, yet such is the importance of the problem involved that an attempt has been made. I have lumped the black, dark brown, light brown, and ++ dark eye color categories into a general group called Darks, and the others have been seriated together under the name of Lights. Such a division has the sole virtue of numerical parity, necessary for its existence in so small a total group. No significant differences are expected, yet one appears, that of the bigonial, which shows a tendency diametrically opposite to that found in the Rif and Senhaja.

In stature the Darks run slightly taller, as usual; the Lights are rounder headed, due to the possession of shorter rather than broader heads. The head breadth also is less than that of the brunet group, but does not differ as strikingly as does the head length. Both, on the whole, present the relatively high cephalic index which distinguishes the Ghomarans generically from the Riffians and Senhajans. The broader bigonial, the one significant feature, goes with the lights, who with higher and narrower noses have the lower nasal index. These differences are not parallel to those found in the Rif and Senhaja. Where blonds are less dolichocephalic in these regions, they are broader rather than shorter headed. Furthermore they are narrower rather than broader jawed. The "feel" of this Ghomaran group, and especially of the blonder element in it, reminds one of the Kabyles of Armand Viré and of Hooton's Canary Island series, especially of the rounder headed type which he found con-

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centrated in the island of Gomera. By this last statement I imply a similarity of physical type not suggested by the similarity of names, whether or not the latter be a coincidence, a question which the author is not qualified to decide *ex vatico*.

At any rate, whether blond or brunet, we are dealing, in the Ghomara, with an alien population, one more like Berber types in Algeria and the south than the indigenous breed, and one which suggests the possibility of a secondary entrance of blondism into northern Morocco.

TABLE 130. PIGMENTATION ANALYSIS: GHOMARA

COEFFICIENTS OF MEAN SQUARE CONTINGENCY

Eye color and beard color ..... .47

	With Eye Color	With Beard Color		With Eye Color	With Beard Color
Skin color	.37	.40	Nasal bridge height	.30	
Hair form	.44	.31	Nasal tip thickness	.38	.44
Hair texture	.27	.12	Nasal wings	.44	
Forehead slope.....	.47		Lips, eversion.....	.46	
Browridges	.41		Chin prominence	.27	

Eye color and beard color. C = .47

		Light		Light Brown		Reddish-Brown		Dark Brown		Black	
	No.	F.	I. F.	F.	I. F.	F.	I. F.	F.	I. F.	F.	I. F.
Light	1	..	..	1	.13						
++Light	12	..	..	1	1.56	3	1.91	2	3.13	6	4.70
Even	21	1	1.22	4	2.74	3	3.35	6	5.48	7	8.22
++Dark	8	1	.22	..	..	1	1.28	2	2.09	4	3.13
Light brown	11	1	.64	..	..	2	1.75	3	2.87	5	4.30
Dark brown	15	1	.87	3	1.96	2	2.39	5	3.91	4	5.86
Black	1	..	..	..	..	..	..	..	..	1	.39

Eye color and skin color. C = .37

		Light		Medium		Dark		Yellowish	
	No.	F.	I. F.	F.	I. F.	F.	I. F.	F.	I. F.
Light	1	1	.36						
++Light	12	6	4.34	3	4.52	3	2.95		
Even	21	6	7.61	10	7.92	4	5.15	1	.30
++Dark	8	3	2.90	2	3.01	3	1.97		
Light brown	11	4	3.98	5	4.14	2	2.71		
Dark brown	15	5	5.44	6	5.65	4	3.69		
Black	..	..	..	..	..	1	.25		

Beard color and skin color. C = .40

		Light		Medium		Dark		Yellowish	
	No.	F.	I. F.	F.	I. F.	F.	I. F.	F.	I. F.
Light	4	..	..	2	1.51	2	.99		
Light brown	9	2	3.26	4	3.39	2	2.22	1	.13
Reddish-brown.....	11	6	3.98	2	4.14	3	2.71		
Dark brown	18	8	6.52	6	6.78	4	4.44		
Black	27	9	9.52	12	10.16	6	6.65		

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Eye color and nasal wings. C = .44

	No.	Compressed F.	Compressed L. F.	Medium F.	Medium L. F.	Flaring F.	Flaring L. F.
Light	1	..	..	1	.67		
++Light	12	4	2.78	7	8.00	1	1.24
Even	21	4	4.87	13	14.00	4	2.13
++Dark	8	1	1.86	6	5.34	1	.81
Light brown	11	4	2.55	7	7.34		
Dark brown	15	3	3.48	12	10.00		
Black	..	..	..	..	..	1	.10

Eye color and lips, eversion. C = .46

	No.	Absent F.	Absent L. F.	+ F.	+ L. F.	++ F.	++ L. F.
Light	1	..	..	1	.38		
++Light	12	1	1.57	7	4.52	4	4.88
Even	21	2	2.74	7	7.92	11	8.52	1	1.83
++Dark	8	..	..	2	3.02	5	2.96	1	.70
Light brown	11	1	1.43	5	4.15	3	4.47	2	.96
Dark brown	15	5	1.96	4	5.65	4	6.09	2	1.30
Black	1	..	..	..	..	1	.41		

Eye color and hair form. C = .44

	No.	Straight F.	Straight L. F.	Low Waves F.	Low Waves L. F.	Deep Waves F.	Deep Waves L. F.	Curly F.	Curly L. F.
Light	1	..	..	1	.26				
++Light	12	1	.17	4	3.13	2	2.26	5	6.43
Even	21	..	..	4	5.48	2	3.96	15	11.26
++Dark	8	..	..	3	2.09	1	1.51	4	4.29
Light brown	11	..	..	2	2.87	3	2.07	6	5.90
Dark brown	15	..	..	4	3.91	4	2.83	7	8.04
Black	1	..	..	..	..	1	.19		

Beard color and hair form. C = .31

	No.	Straight F.	Straight L. F.	Low Waves F.	Low Waves L. F.	Deep Waves F.	Deep Waves L. F.	Curly F.	Curly L. F.
Light	4	..	..	1	1.04	..	..	3	2.14
Light brown	9	..	..	2	2.35	1	1.70	6	4.83
Reddish-brown	11	..	..	3	2.87	4	2.07	4	6.67
Dark brown	18	..	..	7	4.70	3	3.39	8	9.65
Black	27	1	.39	5	7.04	5	5.09	16	14.48

Eye color and hair texture. C = .27

	No.	Medium F.	Medium L. F.	Fine F.	Fine L. F.
Light	1	1	.62		
++Light	12	8	7.48	4	4.52
Even	21	12	13.01	9	7.91
++Dark	8	7	4.98	1	3.15
Light brown	11	7	6.85	4	4.14
Dark brown	15	8	9.35	7	5.65
Black	1	..	..	1	.38

Beard color and hair texture. C = .12

	No.	Medium F.	Medium L. F.	Fine F.	Fine L. F.
Light	4	3	2.49	1	1.51
Light brown	9	5	5.61	4	3.39
Reddish-brown	11	7	6.86	4	4.14
Dark brown	18	10	11.12	8	6.78
Black	27	18	16.83	9	10.17

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Eye color and forehead slope. C = .44

	No.	sm. F.	sm. L.F.	+ F.	+ L.F.	++ F.	++ L.F.	+++ F.	+++ L.F.
Light	1	..	..	..	..	1	.17		
++Light	12	5	5.74	4	4.00	3	2.09		
Even	21	11	10.03	7	7.00	2	3.65	1	.30
++Dark	8	1	3.83	5	2.67	2	.96		
Light brown	11	6	5.27	2	3.67	3	1.93		
Dark brown	15	10	7.18	4	5.00	1	2.61		
Black	1	..	..	1	.33				

Eye color and browridges. C = .41

	No.	sm. F.	sm. L.F.	+ F.	+ L.F.	++ F.	++ L.F.	+++ F.	+++ L.F.
Light	1	..	..	1	.52				
++Light	12	2	3.65	8	6.26	2	1.91		
Even	21	8	6.39	9	11.02	3	3.35	1	.30
++Dark	8	2	2.44	3	3.31	3	1.28		
Light brown	11	6	3.35	4	5.74	1	1.75		
Dark brown	15	3	4.56	10	7.83	2	2.39		
Black	1	..	..	1	.52				

Eye color and nasal bridge height. C = .30

	No.	sm. F.	sm. L.F.	+ F.	+ L.F.	++ F.	++ L.F.
Light	1	..	..	1	.56		
++Light	12	1	1.22	5	6.78	6	4.00
Even	21	3	2.13	11	11.87	7	7.00
++Dark	8	1	.81	5	4.52	2	2.67
Light brown	11	1	1.12	6	6.22	4	3.67
Dark brown	15	1	1.52	11	8.48	3	5.00
Black	1	..	..	..	..	1	.33

Eye color and nasal tip thickness. C = .38

	No.	sm. F.	sm. L.F.	+ F.	+ L.F.	++ F.	++ L.F.
Light	1	..	..	1	.46		
++Light	12	6	4.52	6	5.57		
Even	21	7	7.91	10	9.74	4	3.35
++Dark	8	4	3.01	3	3.71	1	1.28
Light brown	11	5	4.14	4	4.10	2	1.75
Dark brown	15	4	5.65	8	6.96	3	2.39
Black	1	..	..	..	..	1	.16

Beard color and nasal tip thickness. C = .41

	No.	sm. F.	sm. L.F.	+ F.	+ L.F.	++ F.	++ L.F.
Light	4	2	2.03	..	..	2	.64
Light brown	9	1	3.45	7	4.14	1	1.43
Reddish-brown	11	5	4.14	6	5.10		
Dark brown	18	5	6.79	8	8.35	5	2.87
Black	27	13	10.16	11	12.50	3	4.31

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Eye color and chin prominence. C = .27

	No.	sm. F.	sm. L F.	+ F.	+ L F.	++ F.	++ L F.
Light	1	..	..	1	.57		
++Light	12	4	5.04	8	6.78		
Even	21	8	8.83	12	11.87	1	.30
++Dark	8	4	3.36	4	4.52		
Light brown	11	5	4.61	6	6.22		
Dark brown	15	7	6.31	8	8.48		
Black	1	1	.42				

GHOMARA, ANALYSIS OF OBSERVATIONS

In analyzing the Ghomara by pigment types the same system has been used as with the Senhaja, and for the same criteria, excepting obliquity, which does not occur in sufficient frequency in the Ghomara to create any problem.

The contingencies run high in this group, without the assistance of any single aberrant individual, as in two characters with the Senhaja. Their height is partly due to the small size of the series, but nevertheless in all criteria but hair texture and chin prominence they are probably significant.

In inspecting the individual contingencies little difference is to be seen between the frequencies and the independence frequencies, despite the high coefficients; here we are working on a smaller scale. This is especially true of the first three contingencies, in which the chief differences seem to be in the tendencies of the extremes. The light brown eyed type seems to have slightly darker beards and lighter skins than the dark brown eyed type. The blonds do not manifest their habitual peculiarities in any striking manner.

In hair form the lighter eyes are associated with low waves, and the evenly mixed eyes with curls; light brown eyes go with curlier and dark brown eyes with straighter hair. In associating hair form with beard color it appears that the lights and blacks run curly, the dark brown beards about average, and the reddish-brown beards straightest.

In hair texture, despite the low coefficient, ++ dark eyes are coarser and dark brown eyes slightly finer than the norm; there is no visible connection between beard color and hair texture.

Light, ++ light, and ++ dark eyes go with sloping foreheads; dark brown eyes go with straighter ones. Light brown eyes appear slightly bimodal in this feature. In regard to browridges, the light brown element is as usual weakest, while the two lightest categories seem slightly greater than the independence frequencies.

In the nasal bridge height the ++ light eyes imply higher noses, and the dark brown eyes lower ones. In the nasal tip thickness, the dark brown and black eyes run thicker, with the ++ light thinnest. Black beards, on the other hand, are associated with the thinnest noses, while the lighter shades of beard color do not segregate as one might expect. The dark brown beards, indeed, go with the thickest nasal tips. In the nasal wings, the ++ light and light brown eyed types are most compressed, dark brown eyes show an excess of medium, and the evenly matched eyes of flaring alae. The one black eyed individual likewise flares, lending considerable support to the final figure.

In lip eversion the lighter eyed individuals run to sm, the evenly mixed and ++ dark eyed ones to +, and the dark brown eyed type to both the extreme of Absent, and a ++

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condition, which is at least normal. Light brown eyes exhibit a bimodality between sm and ++.

In chin prominence, the lighter eyed types exceed the various brunet categories.

Summary: The contingencies of the Ghomara, while yielding the highest coefficients of the three groups, yet yield the least satisfactory results in their lack of internal clarity. The blonds, light brown eyed brunets, and dark brown eyed brunets show their characteristic tendencies in many of the criteria, but in others fail to, while nevertheless creating a jumble which piles up a high contingency difficult to interpret. The contingencies heighten the feeling derived from the measurements, that the Ghomara presents a different racial problem from that of the Rif and Senhaja. I should like to attack it with a much larger series than that at hand.

ANALYSIS OF PIGMENT DATA, GENERAL CONCLUSIONS

1. In each of the three areas, Rif, Senhaja, and Ghomara, the blonder types segregate themselves out from the brunet types in a European direction. These segregations are largely concerned with morphological characters, especially of the soft parts; in the sum total of metrical differences this segregation is not clear — individually it is chiefly concerned with the nose and with the bigonial diameter.

2. In each of these three regions the types seem metrically more like each other than like corresponding types from the other two regions, yet in observational features they run more by types. The directions or tendencies of corresponding types, however, are alike.

3. From a study of these types in the light of the preceding chapters on tribal distribution the following facts disclose themselves:

A. The two central types are a blond North European and a light brown eyed one metrically close to the former, yet the darkest skinned, curliest haired, and least fine nosed of them all. This second type may represent the last vestiges of an original Mediterranean population swamped out by the blonds at a remotely ancient date, or it may represent early marginal infiltrations of sub-negroid or Mediterranean peoples. Distribution lends most support to the latter hypothesis.

B. Everywhere a dark brown eyed brunet type seems intrusive and relatively late in arrival. This type is taller and less negroid in skin color and hair form than the earlier brunet type, and is apparently of separate origin from the former. It is probably Hamitic or Saharan in origin. Skeletally it differs little from the North European, and hence strengthens the comparison between the Riffians and the North European peoples. With this type in the eastern Rif there seems to have come a reënforcement of light eye color, without a corresponding increment of beard blondism. This light eyed infiltration may represent an earlier wave of the general invasion into the east, with the dark brown eyed element a later manifestation of the same general movement. In the Senhaja this invasion is accompanied by a tendency to produce a rayed iris in mixture, and by a certain degree of eye obliquity. It is accompanied in the Senhaja by a negroid element relatively lacking in the eastern Rif.

C. Although the above generalizations hold true in limited degree for the Ghomara, this group possesses a mesocephaly alien to the region in general, and a reversal of the general situation in regard to the bigonial. It is probably connected with certain sub-blond and sub-brachycephalic elements found in other parts of North Africa, such as the Kabyles and a certain type of Guanche, rather than with the blond type of the Rif.

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CHAPTER XXIII

MORPHOLOGICAL TYPES IN TRIBAL MEANS

UTILITY OF SYSTEM. TECHNIQUE EMPLOYED

In analyzing the relationships between tribal means in measurements and indices, certain fundamental divisions of the Riffian and Senhajan tribes were indicated, but so homogenous is our group that metrical criteria alone cannot show to greatest advantage what local differences of type occur. Similarly, the analysis of pigment types served to segregate blonds from brunets, and to designate subdivisions of each, but in a group as finely blended as is ours the vagaries of pigment heredity may obscure certain fundamental truths. For the sake of clarity, then, and as a supplement to the foregoing analyses, I have devised a method of tracing morphological types based on observations of the head and face. Only those observations for which tribal means have been calculated are used. Each region which exhibits individuality in its general tone of observational qualities has served as the basis for a type. Thus in Beni Amart and Beni Urriaghel we find high foreheads, high, thin noses, compressed malars, uneverted lips, and other criteria of a North European type which have

TABLE 131. MORPHOLOGICAL TYPES BASED UPON TRIBAL MEANS

Criteria Selected to Determine Distribution of Types

Central		*Eastern*	
1. Forehead height	+	1. Forehead breadth	+
2. Eyes, obliquity	−	2. Browridges	+
3. Nasion depression	−	3. Nasion depression	+
4. Nasal root height	+	4. Nasal root height	+
5. Nasal root breadth	−	5. Nasal root breadth	+
6. Nasal bridge height	+	6. Nasal bridge height	+
7. Nasal bridge breadth	−	7. Nasal bridge breadth	+
8. Nasal tip thickness	−	8. Nasal tip thickness	+
9. Lips, eversion	−	9. Malars	+
10. Chin prominence	+	10. Gonial angles	+
11. Malars	−	11. Lambdoid flattening	+
12. Occipital disharmony	−	12. Occipital disharmony	+

Saharan		*Negroid*	
1. Forehead height	−	1. Forehead breadth	−
2. Forehead slope	+	2. Forehead slope	−
3. Eyes, obliquity	+	3. Eyes, obliquity	+
4. Nasion depression	−	4. Nasion depression	+
5. Nasal root height	+	5. Nasal root height	−
6. Nasal bridge height	+	6. Nasal root breadth	+
7. Nasal bridge breadth	−	7. Nasal bridge breadth	+
8. Nasal tip thickness	+	8. Nasal tip thickness	+
9. Lips, integumental	−	9. Lips, integumental	+
10. Lips, eversion	+	10. Lips, membranous	+
11. Chin prominence	−	11. Lips, eversion	+
12. Gonial angles	−	12. Chin prominence	−

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TRIBAL DISTRIBUTION OF MORPHOLOGICAL TYPES

	Central	Eastern	Saharan	Negroid
Kebdana	63.57	42.34	48.18	40.74
Mazuza	64.91	43.60	45.11	37.76
Galiya	63.58	42.03	46.63	39.58
Nomads	62.18	41.11	50.94	39.83
Said	62.08	45.90	46.98	38.90
Ulishk	60.38	45.51	44.68	41.43
Temsaman	64.04	41.83	44.83	40.84
Tuzin	61.87	41.27	43.70	40.10
Gzennaya	62.15	45.98	45.79	40.75
Urriaghel	64.55	39.83	45.20	39.55
Amart	67.46	41.34	45.14	36.99
Targuist	59.03	43.80	46.73	43.52
Bokoya	63.53	39.65	43.16	40.42
Maritimes	63.51	41.40	46.74	39.95
Zarket	64.92	40.58	45.67	39.33
Bu Nsar	61.41	42.26	46.91	43.70
Hamid	60.60	43.64	48.42	44.01
Taghsuth	59.77	44.45	47.63	44.94
Ktama	59.33	39.89	49.58	47.20
Ar. Sen.	59.69	43.50	46.52	43.37
Total Rif	63.04	42.60	45.70	39.99
Total Senhaja	60.95	42.99	47.30	43.76
Ghomara	59.65	43.76	48.07	43.36
Sheshawen	61.68	44.09	45.73	41.59
Arabs	60.54	43.63	46.20	43.52
Shluh	59.65	43.51	45.75	44.08

already manifested their interrelation and connection with blondism, which seems to be centered in this area. Therefore a type based on these means has been segregated, in the following manner: In each tribe the negative means are reversed, i. e., subtracted from one hundred. Thus all twelve means are now positive. They are added and divided by twelve. The resulting averages of means indicate relative tribal values or intensities in each type selected. Such averages have, of course, no absolute significance, being purely comparative in nature.

The advantage of this system is that it brings out more clearly than any other method heretofore used the division of the area into sub-regions, the foci of different facial types. The disadvantage of it is that since each tribe is taken as a unit minority factors within the tribes are hidden, and only the major tendency of the tribe is expressed. Minority factors have, however, been sufficiently unearthed by the pigmentation analysis, and the present system will help clear up the former by a more definite segregation of tribal relationships than it has reached.

SELECTION OF TYPES

The first and most obvious type to be selected is the Central, chosen on the bases of the morphological characteristics of Beni Amart and Beni Urriaghel, and of the Blond pigment type. The criteria listed are all Nordic characteristics. Broad foreheads have not been listed because they seem to go with the Eastern type, and sloping foreheads because they

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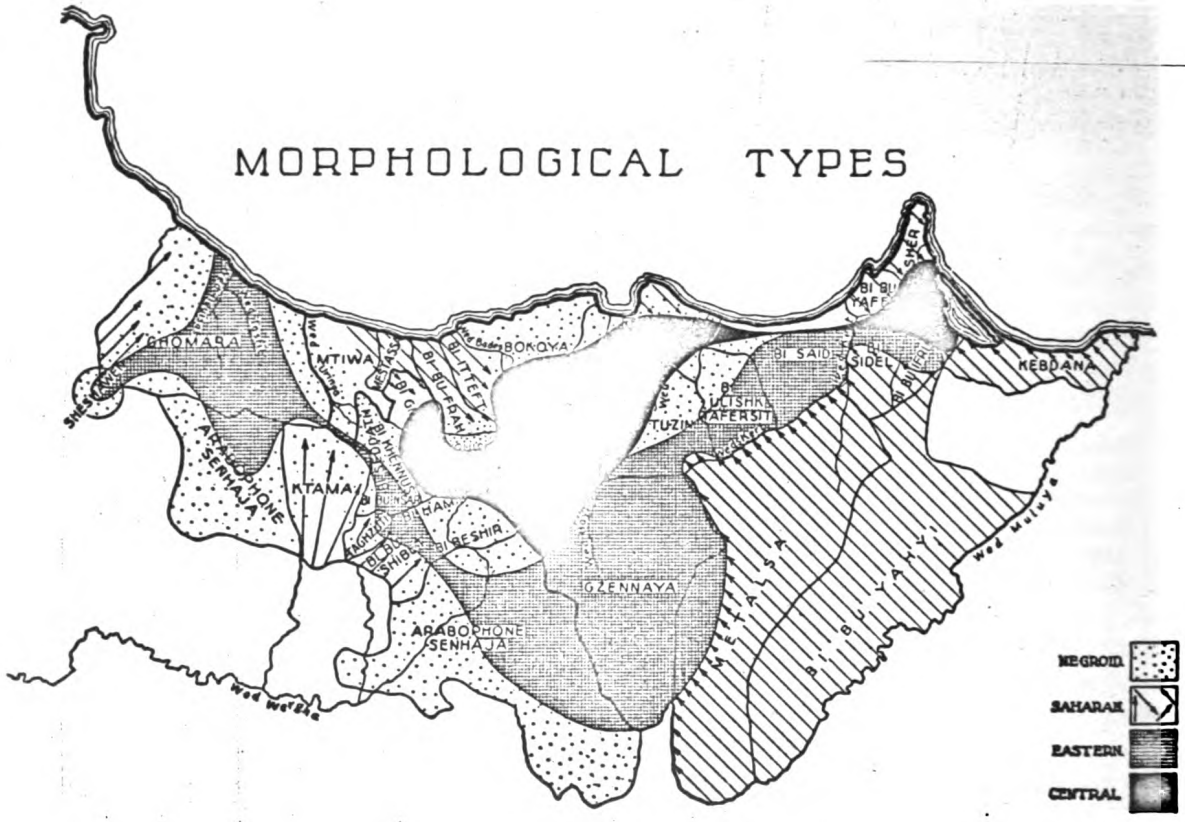
belong more with the Saharan. In neither integumental nor membranous lip thickness do either Beni Amart or the Blond pigment type appear thinner than the Riffian mean; their only lip peculiarity is a lack of eversion. In lambdoid and occipital irregularities they show the least evidence of disharmonic mixture.

The Eastern type was chosen with the Beni Said and Gzennaya as models, and reflects the broad faced, heavy jawed, thick-set type which manifested itself in the analysis of cer-



MAP 41

tain indices and seemed at variance with general distributional facts. Every criterion used is positive; the type is heavy, bony, broad, and large nosed. The criteria use show it to lean in an Alpine direction, yet it is probably related to the Guanche type, and, to use a much abused term, represents a Cro-Magnon-like disharmony, since we are dealing with dolichocephals. It is this type which possesses the maximum lambdoid flattening and occipital disharmony.

The Saharan type was selected with the Beni Bu Yahyi and Metalsa in view. Previous analyses have failed to segregate a Nomadic from a general Eastern type, a segregation which actual means seem to justify. These differences are expressed in the criteria listed for the Saharan type; a low sloping forehead, oblique orbits, a high rooted high bridged nose with little nasion depression and thin at the bridge, yet broadening out and becoming depressed at the tip, lips thin of integument and yet everted, and a receding chin. These

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features characterize the first type to appear which is not completely European. They indicate a Hamitic strain — Hamitic in the sense of dynastic Egyptian, and the non-negroid element in the Sahara and eastern Sudan.

The Negroid type presents the criteria normally associated with Negroes, with the addition of eye obliquity. This obliquity cannot with accuracy be segregated from either the Saharan or Negroid types, and although I am perhaps doing one of them an injustice, it will be safer to attribute it to both. Since the Negroids appear always in dilute blends European dominants such as the high nasal bridge have necessitated the omission of certain usual criteria. This type alone of all four has no definite locality of inspiration. Some of the Senhaja and Beni Ulishk gave the principal suggestions.

DISTRIBUTION, CENTRAL TYPE

In its distribution the Central type, representing the indigenous blond strain, is clearly the earliest of the four. It has two foci, a major one in Beni Amart with Beni Urriaghel in close support and Zarket and Temsaman acting as shoulders, and a minor one in Mazuza with the rest of Galiya and Kebdana as shoulders. This distribution accords with the distributions of skin and beard color, which show a regional bifurcation, and with the distribution of Riffian social institutions, which indicates a secondary center of survival in the region of this minor focus of the Central type. Judging from this evidence the logical conclusion is that this fundamentally North European type once stretched from Beni Amart to the mouth of the Muluya, but was later pushed back by general pressure and split into a larger and a smaller section by inroads over the desert invasion route. It is noteworthy that in the six Moroccan groups the Central type is highest in the Rif, whereas with all other types the lowest score in each case is Riffian; hence this alone is the fundamentally Riffian type.

DISTRIBUTION, EASTERN TYPE

This type is peripheral to the Central, and its Riffian distribution shows it thrust into the eastern and southern flank of the Central type, as if it had pushed the former northward and westward, from Gzennaya to Beni Said, and had later itself been pushed in the same direction and split. It likewise manifests itself strongly in Taghzuth and to a lesser degree in Beni Bu Nsar and Beni Hamid. Its relationship to the Ghomaran type is quite close, judging by distribution. In its broad faced, heavy jawed makeup it probably drew originally on the same source. This Eastern type serves to explain some of the problems left over from the pigment analysis; it cuts across pigment types, including much of the Light Eyes, Intermediate, and the broad jawed element in the Brunet No. 4. It is thoroughly mixed in pigment and probably was so before it reached the Rif; with dark beards and a tendency to rufosity and freckles, and light, mixed, or dark brown eyes. This is the type which reënforced the eye blondism of the eastern Rif.

DISTRIBUTION, SAHARAN TYPE

This is the other mode of the Brunet No. 4 pigment type, totally different from the Eastern type, and, as we have seen, non-European in general classification, although distinctly not negroid. Its distribution indicates that it was a late-comer in the north of

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Morocco, compared to the others. In the Rif it is found in strength only among the Beni Bu Yahyi and Metalsa, but in the Senhaja and Ghomara it is likewise present. It is probably the type which was introduced with the historic invasions of the Garet, and may have come with the traditional Senhaja and Ghomara, in greater strength with the former than with the latter. It may also have been reënforced by Arab contacts.

DISTRIBUTION, NEGROID TYPE

This is the most difficult of all the types to interpret. In the Senhaja lies its greatest concentration. Yet its distribution within this group is less intrusive than that of either the Eastern or Saharan types, and it is likewise found in Targuist, and in Beni Ulishk and Tafersit, in the latter places apparently in isolation. Beni Amart and Mazuza are left as unaffected islands in its distribution; hence it is at any rate later than the Central.

The true explanation is probably that negroid elements have seeped in at various times and from various directions. The Brunet No. 3 pigment type, which although weak in the nucleus of the Central type is yet associated with the Blonds in distribution, showed itself most negroid in skin color, hair form, and certain nasal features. This may represent an early infiltration of negroids, or of so-called Mediterraneans, or of negroids producing in mixture a Mediterranean type. The concentrations at Targuist and Tafersit have historical explanations which seem to be valid. The concentration in the Senhaja indicates an infiltration which may have accompanied invasions of other types or may have been earlier than either Eastern or Saharan waves. At any rate the only suggestion of a classical Mediterranean type in the Rif depends upon the infiltration of negroid racial features at some indeterminate but probably early period. The Negroid type here selected is stronger in all the outside groups than anywhere in the Rif; hence it probably has seeped in over a long period and in dilute quantities, the chief point of leakage being the valley of the Wergha.

Summary: Judging by this material and by preceding analyses as well, the following order of events in North Africa may be deduced:

1. A blond type which resembles the North European in measurements and in facial characteristics as well as in pigment is fundamental in the Rif. If there were any earlier types they have been driven out or absorbed. The section of the Rif to which this type clings most tenaciously in subsequent events is the difficult mountain ridge from Zarket to Melilla.

2. A Negroid or Mediterranean type starts seeping in at a very early date. It leaves its traces of dark skin color, curly hair, and its characteristic nasal form in closely peripheral tribes, leaving only the very nucleus of the region of blondism untouched, yet nowhere affecting the prevailing type very seriously. At some subsequent date this negroid element is strongly reënforced in the Senhaja. This is probably the "Shluh" type which the Senhaja and Ghomara claim preceded their immigrant ancestors.

3. A tall, bony, thick-set, broad faced, large nosed type, cranially disharmonic, already mixed in pigment and bearing as its lighter element a tendency to light eye color without an equivalent degree of hair blondism, enters the eastern Rif and establishes itself in the region stretching from Gzennaya to Beni Said. Either through contact with the original

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Riffians or as an element of its own, it manifests a high degree of rufosity and freckling. This type also comes in along the Senhajan invasion route, and finds its way to Targuist. It probably derives its squareness of face and heaviness of feature from the same source as a similar type which has invaded the Ghomara. This Eastern type is, however, much taller than the Ghomaran and more dolichocephalic.

4. A non-European and non-Negroid Hamitic or Saharan type finds its way in late times into the Garet, probably representing historic invasions. It splits the Eastern type, separating Gzennaya from Beni Said, and tending further to separate by its repercussions the larger from the smaller nuclei of the Central type. This Saharan invasion also finds its way up the valley of the Wergha into Taghzuth and other tribes close within the Senhajan gates, as well as manifesting itself in the Ghomara.

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CHAPTER XXIV

BLOOD GROUPS, THEIR DISTRIBUTION AND SIGNIFICANCE

During parts of the 1926–27 season blood samples were taken. Owing to difficulties in making connections it was not possible to have the necessary tubes at hand all of the time. The samples were sent to Professor Laurence Snyder of the North Carolina State College for analysis. Snyder uses the same terminology as Streng and Hirschfeld, with I representing the original or recessive type, often designated as 0; II representing the A or p mutation, and III the B or q mutation. Group IV is the numerically small mixed group. Under the Moss system, I and IV are reversed, while II and III remain the same. In this study the system used by Snyder has been followed, since it is through his kindness that the present analysis was carried out.

TABLE 132. BLOOD GROUPS

	No.	I - O	II A	III B	IV
		By percentages			
Total Rif	195	50.26	18.46	28.72	3.08
		(98)	(36)	(56)	(6)
Total Senhaja	49	57.14	26.53	14.29	2.04
		(28)	(13)	(7)	(1)
Arabs	34	52.94	20.59	23.53	2.94
		(18)	(7)	(8)	(1)
Shluh	123	61.79	21.95	15.45	.81
		(76)	(27)	(19)	(1)
		Tribes with blood series greater than 10			
Galiya	30	36.67	30.00	30.00	3.33
		(11)	(9)	(9)	(1)
Gzennaya	47	53.19	14.89	27.66	4.26
		(25)	(7)	(13)	(2)
Urriaghel	31	58.06	19.36	22.58	
		(18)	(6)	(7)	
Amart	17	52.94	29.41	11.77	5.88
		(9)	(5)	(2)	(1)
Targuist	14	64.29	7.14	21.43	7.14
		(9)	(1)	(3)	(1)
Zarket	21	61.90	28.57	9.52	
		(13)	(6)	(2)	
Ar. Sen.	13	61.54	7.69	23.08	7.69
		(8)	(1)	(3)	(1)

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Tribal Raw Data, Rif and Senhaja[1]

	No.	I	II	III	IV
Kebdana	2	1	1		
Mazuza	6	3	1	2	
Galiya	30	11	9	9	1
Nomads	6	4	..	2	
Said	2	1	..	1	
Ulishk	1	..	..	1	
Temsaman	6	1	3	2	
Tuzin	9	2	2	5	
Gzennaya	47	25	7	13	2
Urriaghel	31	18	6	7	
Amart	17	9	5	2	1
Targuist	14	9	1	3	1
Bokoya	4	2	..	2	
Maritimes	9	5	..	3	1
Inter-tribal	12	7	1	4	
Zarket	21	13	6	2	
Bu Nsar	1	1			
Hamid	4	1	2	1	
Taghzuth	6	1	4	1	
Ktama	4	4			
Ar. Sen.	13	8	1	3	1

[1] The amount of raw data on the blood groups is so small that it may be readily presented. The above table is intended for the use of experts in this line who may wish to subject the material to formulae of their own. They will find the raw data for the Shluh and Arabs, as well as for the Total Rif and Total Senhaja, in parentheses in the first table. Unfortunately I was unable to take blood samples in Sheshawen and in the Ghomara.

Distribution of Tribal Combinations[1]

	No.	I	II	III	IV
Galiyan	38	39.47 (15)	28.95 (11)	28.95 (11)	2.63 (1)
Eastern	18	38.89 (7)	11.11 (2)	50.00 (9)	
Gzennaya	47	53.19 (25)	14.89 (7)	27.66 (13)	4.26 (2)
Urriaghel	31	58.06 (18)	19.36 (6)	22.58 (7)	
Targuist	14	64.29 (9)	7.14 (1)	21.43 (3)	7.14 (1)
Western	13	53.85 (7)	..	38.46 (5)	7.69 (1)
Central	39	56.41 (22)	30.77 (12)	10.26 (4)	2.56 (1)
Senhajan	11	27.27 (3)	54.55 (6)	18.18 (2)	
Ar. Sen.	13	61.54 (8)	7.69 (1)	23.08 (3)	7.69 (1)

Galiyan is composed of Galiya, Mazuza, and Kebdana.
Eastern is composed of Nomads, Said, Ulishk, Tuzin.
Western is composed of Maritimes and Bokoya.
Central is composed of Amart and Zarket.
Senhajan is composed of Bu Nsar, Taghzuth, and Hamid.

[1] I did not combine Temsaman and Ktama into larger groups because neither of these two seemed to fit readily into any group bordering it. Thus there are no forced combinations; all combinations being composed of elements alike in so far as the small size of each permits one to judge. Beni Bu Nsar is an exception to this, having but one member, but in this case Beni Bu Nsar is so closely allied to Taghzuth and Beni Hamid in the possession of other distinctly Senhajan traits that its inclusion is logical. Ktama, on the other hand, often divergent from its neighbors, was not incorporated with this group, since it possessed the suggestion of a high I tendency. Temsaman, with six members, and suggesting a high II, could hardly be associated with those around it.

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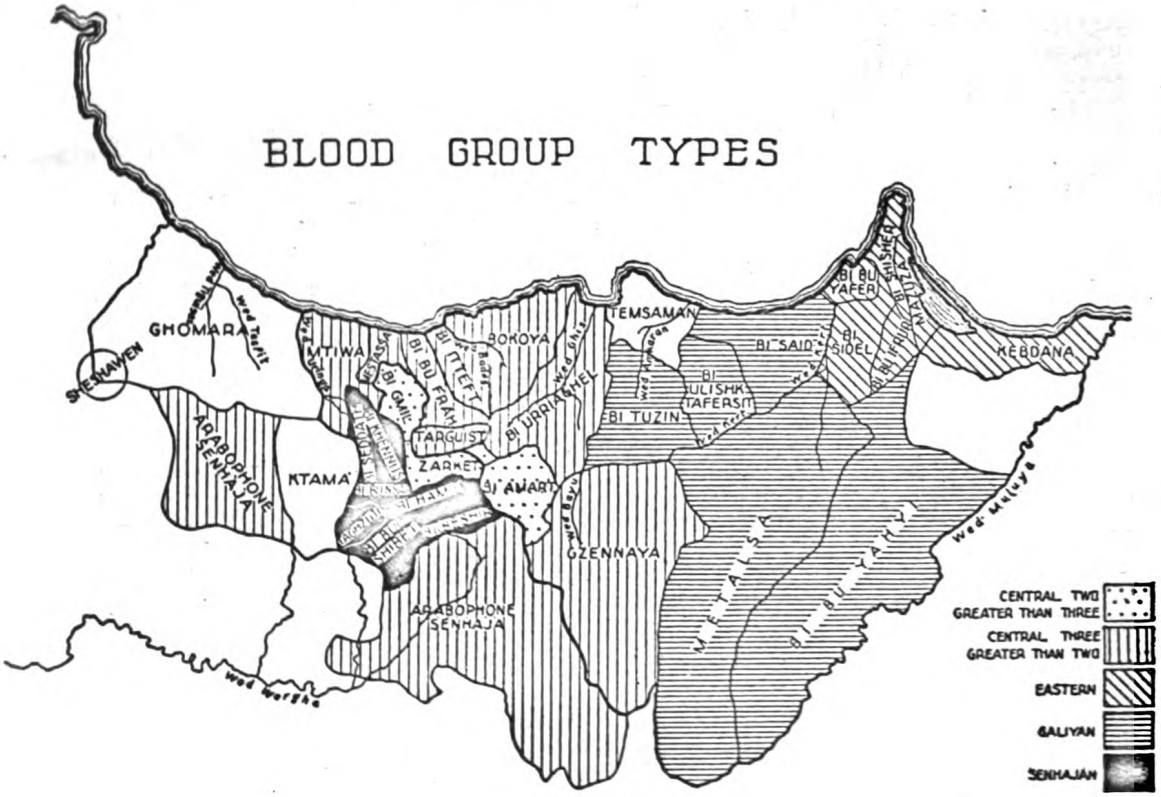
BLOOD GROUP DISTRIBUTION

The percentages presented in the accompanying tables indicate the existence of three contrasting blood-type combinations in the Rif-Senhaja area; a high III tendency in the east, especially strong in the regions of alien influence; a high II tendency centered in the Senhajan nucleus of Taghzuth, Beni Hamid, and Beni Bu Nsar, and a high I tendency everywhere east of a line drawn by the Nekor, the southern border of Beni Tuzin, and the eastern boundary of the Gzennaya, with the exception of the nuclear Senhajan area just noted. In this high I area, III dominates II everywhere except in Beni Amart and Zarket, in which tribes the most European pattern is found. In Galiya, Mazuza, and Kebdana an intermediate condition is found with I of moderate value and II and III equal.



MAP 42

The only possible deduction from these data is that the original population of the Rif possessed a high I contingent, that group III came in over the southeastern invasion route, through the path of Arab influence into the Maritime tribes and Targuist, and around the fringes in general, except where Senhajan influence is strong. The high II tendency came in with the Senhaja. The differentiation of the central Rif into a region in which II is greater than III, and one in which III exceeds II, may mark the divide, as it were, between eastern and western influences. On the other hand, the early Rif may have been characterized by a condition in which II was secondary to I, and III of low if any value.

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The Arab group in general resembles the Riffian in that I constitutes more than 50 per cent and III is greater than II. It closely resembles those Riffian groups peripheral to the Beni Amart-Zarket nucleus and away from the direct influence of the eastern area. It apparently has been subjected to somewhat the same influences as has the Rif in general. It bears little relation to Hirschfeld's Arabs,[1] among whom the succession is I, II, III, IV.

This pattern is carried out, however, by the Shluh, who of all Moroccan groups show the most European blood group proportions.

Comparing the Central, Senhajan, and Eastern groupings, the three most characteristic in the Rif-Senhajan area, with their closest known associates, we obtain the following results:

		By percentages				
	No.	I	II	III	IV	Authority
Central	39	56.41	30.77	10.26	2.56	
Icelanders	800	55.6	32.1	9.6	2.6	Johnson
Senhajan	11	27.27	54.55	18.18		
Finns, Oulu	80	30.0	51.3	12.5	6.3	Streng and Ryti
Eastern	18	38.89	11.11	50.0	8.5	
Indians	500	31.3	19.0	41.2		Hirschfeld

The Central blood type shows its closest relationship to the Icelanders of Johnson, and is likewise comparable to Australian and Negro groups.

The Senhajan blood type bears general Mongoloid resemblances to Finns, Chinese, and Japanese, differing most markedly from the latter in its III content.

The Eastern group is the most difficult to compare because of its extremely high III element. Other groups showing this tendency are all Asiatic with one exception, that of Hirschfeld's Senegalese, who themselves differ in this respect from all other Negroes in the list.

It is impossible to say whether the Moroccans with a high III factor contain it because of a slight negroid content, or the Senegalese contain it because of Berber or Hamitic admixture. Considering the fact that the Bantu do not show it, it is probably not Hamitic in the eastern sense, although it may well be due to older non-Hamitic non-Negroid North African strains.

TABLE 133. METRICAL CONSTANTS OF BLOOD GROUP TYPES

	No.	M.	σ	V.
Stature				
I	98	167.07 ± .39	5.68 ± .27	3.40 ± .16
II	36	167.31 ± .74	6.77 ± .54	4.05 ± .32
III	56	167.48 ± .53	5.87 ± .38	3.50 ± .22
Relative shoulder height				
I	98	82.06 ± .07	1.10 ± .05	1.34 ± .06
II	36	82.31 ± .09	.84 ± .07	1.02 ± .08
III	56	82.32 ± .09	1.06 ± .07	1.21 ± .08
Relative sitting height				
I	98	51.19 ± .11	1.59 ± .08	3.11 ± .15
II	36	50.69 ± .25	2.30 ± .18	4.54 ± .36
III	56	50.97 ± .13	1.42 ± .09	2.78 ± .18

[1] Laurence Snyder, "Human Blood Groups, their Inheritance and Racial Significance," *American Journal of Physical Anthropology*, vol. IX, pp. 233–263.

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	No.	M.	σ	V.
Relative shoulder breadth				
I	98	22.15 ± .07	1.00 ± .05	4.52 ± .22
II	36	22.22 ± .09	.85 ± .07	3.82 ± .30
III	56	22.29 ± .09	.96 ± .06	4.31 ± .28
Relative span				
I	98	103.86 ± .17	2.50 ± .12	2.41 ± .12
II	36	104.19 ± .24	2.13 ± .17	2.04 ± .16
III	55	103.78 ± .21	2.30 ± .15	2.22 ± .14
Bi-iliac				
I	98	28.92 ± .12	1.84 ± .09	6.36 ± .31
II	36	29.25 ± .22	1.98 ± .16	6.77 ± .54
III	56	28.71 ± .15	1.71 ± .11	5.95 ± .38
Head length				
I	98	193.05 ± .47	6.97 ± .33	3.66 ± .18
II	36	194.06 ± .44	5.54 ± .62	2.86 ± .32
III	56	194.21 ± .45	5.05 ± .32	2.60 ± .17
Head breadth				
I	98	144.60 ± .35	5.20 ± .25	3.60 ± .17
II	36	145.86 ± .55	4.98 ± .40	3.41 ± .27
III	56	144.32 ± .43	4.81 ± .31	3.33 ± .21
Cephalic index				
I	98	74.99 ± .21	2.98 ± .14	3.84 ± .18
II	36	75.17 ± .30	2.73 ± .22	3.63 ± .29
III	56	74.36 ± .24	2.63 ± .17	3.54 ± .23
Head height				
I	98	127.62 ± .40	5.84 ± .28	4.58 ± .22
II	36	128.11 ± .66	6.03 ± .48	4.71 ± .38
III	56	128.08 ± .47	5.18 ± .33	4.05 ± .26
Length-height index				
I	98	66.17 ± .20	2.94 ± .14	4.45 ± .21
II	36	66.08 ± .24	3.06 ± .24	4.63 ± .37
III	56	66.18 ± .24	2.70 ± .17	4.08 ± .26
Breadth-height index				
I	98	88.39 ± .31	4.49 ± .22	5.08 ± .24
II	36	87.92 ± .48	4.38 ± .35	4.98 ± .40
III	56	88.71 ± .37	4.12 ± .26	4.64 ± .30
Minimum frontal				
I	98	104.83 ± .34	4.99 ± .24	4.75 ± .23
II	36	105.47 ± .46	4.67 ± .37	4.43 ± .36
III	56	105.50 ± .44	4.93 ± .32	4.67 ± .30
Fronto-parietal index				
I	98	72.55 ± .73	3.35 ± .16	4.62 ± .22
II	36	72.56 ± .36	3.28 ± .26	4.52 ± .36
III	56	73.14 ± .27	2.99 ± .19	4.08 ± .26
Bizygomatic				
I	98	134.74 ± .42	6.15 ± .30	4.56 ± .22
II	36	135.58 ± .35	4.96 ± .40	3.65 ± .29
III	56	135.45 ± .47	5.21 ± .33	3.85 ± .25
Cephalo-facial index				
I	98	93.22 ± .24	3.47 ± .17	3.72 ± .18
II	36	92.97 ± .32	2.94 ± .24	3.16 ± .25
III	56	93.91 ± .32	3.50 ± .22	3.73 ± .24
Bigonial				
I	98	104.53 ± .43	6.36 ± .31	6.09 ± .29
II	36	105.25 ± .50	4.57 ± .36	4.34 ± .35
III	56	105.23 ± .52	5.73 ± .37	5.44 ± .35

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	No.	M.	σ	V.
Total face height				
I	98	121.89 ± .50	7.33 ± .35	6.01 ± .29
II	36	122.72 ± .76	6.95 ± .48	5.67 ± .39
III	56	123.16 ± .61	6.80 ± .44	5.51 ± .35
Facial index				
I	98	90.50 ± .37	5.51 ± .26	6.09 ± .29
II	36	90.53 ± .52	4.83 ± .39	5.34 ± .43
III	56	90.91 ± .52	5.78 ± .37	6.36 ± .41
Upper face height				
I	98	71.46 ± .31	4.61 ± .22	6.45 ± .31
II	36	71.75 ± .51	4.61 ± .37	6.42 ± .51
III	56	71.82 ± .47	5.19 ± .33	7.22 ± .46
Upper facial index				
I	98	53.26 ± .27	3.98 ± .19	7.48 ± .36
II	36	52.97 ± .34	3.11 ± .25	5.87 ± .47
III	56	53.16 ± .37	4.06 ± .26	7.62 ± .49
Nose height				
I	98	54.31 ± .37	3.81 ± .26	7.01 ± .34
II	36	54.39 ± .30	3.75 ± .30	6.90 ± .55
III	56	53.73 ± .33	3.66 ± .23	6.82 ± .44
Nose breadth				
I	98	34.11 ± .16	2.30 ± .11	6.74 ± .31
II	36	33.50 ± .20	1.80 ± .14	5.37 ± .43
III	56	34.25 ± .22	2.43 ± .16	7.10 ± .45
Nasal index				
I	98	63.09 ± .38	5.52 ± .26	8.75 ± .42
II	36	61.66 ± .62	5.60 ± .36	9.08 ± .58
III	56	64.07 ± .58	6.39 ± .41	9.97 ± .64

Differences Between Blood Group Means

	I–II		I–III		II–III	
	D.	XP. E.	D.	XP. E.	D.	XP. E.
Stature	.24	.29	.41	.62	.17	.19
Relative shoulder height	.25	2.27	.26	2.36	.01	.08
Relative sitting height	.50	1.85	.22	1.29	.28	1.00
Relative shoulder breadth	.07	.64	.14	1.27	.07	.54
Relative span	.33	1.14	.08	.30	.41	1.28
Biiliac	.33	1.32	.21	1.12	.54	2.00
Head length	1.01	1.58	1.16	1.63	.15	.24
Head breadth	1.26	1.94	.28	.51	1.54	2.20
Cephalic index	.18	.49	.63	1.97	.81	2.13
Head height	.49	.64	.46	.73	.03	.04
Length-height index	.09	.29	.01	.03	.10	.32
Breadth-height index	.47	.82	.32	.67	.79	1.30
Minimum frontal	.64	1.10	.67	1.20	.03	.05
Fronto-parietal index	.01	.02	.59	1.69	.58	1.29
Bizygomatic	.84	1.22	.71	1.13	.13	.18
Cephalo-facial index	.25	.63	.69	1.72	.94	2.09
Bigonial	.72	1.09	.70	1.04	.02	.03
Total face height	.83	.91	1.27	1.61	.44	.45
Facial index	.03	.05	.41	.64	.38	.51
Upper face height	.29	.48	.36	.64	.07	.10
Upper facial index	.29	.67	.10	.22	.19	.38
Nose height	.08	.11	.58	.84	.66	.78
Nose breadth	.61	2.35	.14	.52	.75	2.50
Nasal index	1.43	1.96	.98	1.42	2.41	2.82
Mean	.47	.99	.50	1.05	.48	.94

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DISPERSIONS OF VALUES OF XP.E. IN TWENTY-FOUR CHARACTERS

	-1	1-2	2-3	3-4	4-5	5-6	6+	Mean
Normal	*12*	*7.68*	*3.26*	*.79*	*.15*	*.02*	*0*	*1.23*
I- II	13	9	2	0	0	0	0	.99
I-III	11	12	1	0	0	0	0	1.05
II-III	14	4	6	0	0	0	0	.94

METRICAL ANALYSIS OF BLOOD GROUPS

We have already seen that blood group distribution in northern Morocco would indicate the importation of mutations A and B from the southwest and southeast respectively, while a central recessive region is left. The suggestion is that perhaps the entry of these two mutants in force has some connection with the movements of various metrical and morphological physical types hitherto noted. Hence seriations have been made of the three groups in the same measurements and indices employed in the pigment analysis. Group I, although it should retain recessive characters, must at the same time take the form of a general grouping since in every known series this group is numerically large no matter what the distinctive features may be. Hence invaders would bring in a considerable proportion of Group I blood as well as their more characteristic elements. Chief differences, therefore, should be sought between II and III. Group IV has not been seriated, because so few examples of that type were found.

Again having recourse to Goring's method of interpreting differences, we find that none of the three groups is as different from the other two as would be permissible under normal conditions, with the samples fortuitously chosen. Looking to individual criteria, as before, we are nevertheless able to distinguish general tendencies. Group II is the most European, or Nordic, in being broadest, lowest headed, and longest, narrowest nosed. Group III has the narrowest hips, narrowest head, widest zygomata in proportion to its head breadth, and broadest nose. As is to be expected, the most significant single factor is the nasal index, which with a value of 2.82 times P.E. cannot fail to indicate some difference in racial values which on the whole is obscured by the mechanism of blood group inheritance, whatever it may be.

TABLE 134. BLOOD GROUPS, CONTINGENCIES: RIF

Skin color. C = .14

	No.	Light F.	Light I.F.	Medium F.	Medium I.F.	Dark F.	Dark I.F.	Medium and Dark : Light
I	98	70	72.59	23	20.74	5	4.67	1 : 2.50
II	36	30	25.45	5	7.62	1	1.71	1 : 5.00
III	55	40	40.74	12	11.64	3	2.62	1 : 2.67

Freckles. C = .20

	No.	Absent F.	Absent I.F.	sm. F.	sm. I.F.	+ F.	+ I.F.	++ F.	++ I.F.	+++ F.	+++ I.F.	Mean
I	98	73	76.74	6	7.78	16	11.93	1	1.19	2	1.04	12.24
II	36	30	28.19	3	2.86	3	4.38	..	..	..	..	6.25
III	55	45	43.07	6	3.67	4	6.69	..	..	..	..	6.36

Beard color. C = .15

	No.	Black F.	Black I.F.	Dark Brown F.	Dark Brown I.F.	Reddish-Brown F.	Reddish-Brown I.F.	Light Brown F.	Light Brown I.F.	Light F.	Light I.F.
I	85	24	25.76	21	21.64	16	12.36	14	16.48	10	8.76
II	34	12	10.30	9	8.65	3	4.94	7	6.59	3	3.50
III	46	14	13.94	12	11.71	5	6.69	11	8.92	4	4.74

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Eye color, degree of pigment. C = .25

	No.	Dark Brown F.	Dark Brown I. F.	Light Brown F.	Light Brown I. F.	+++ Dark F.	+++ Dark I. F.	++ Dark F.	++ Dark I. F.	Even F.	Even I. F.	++ Light F.	++ Light I. F.	+++ Light F.	+++ Light I. F.	Gray F.	Gray I. F.	Blue F.	Blue I. F.	Score
I	98	21.5	18.41	19.5	17.63	.	..	8	8.81	27	31.89	16	14.52	2	2.07	.	..	3	2.59	6.24
II	36	5	6.76	4	6.48	1	.19	4	3.24	17	11.71	4	5.33	.	..	.	..	1	.95	5.83
III	55	9	10.33	10.5	9.89	5	4.95	17.5	17.90	8	8.15	2	1.16	2	1.16	1	.29	1	1.46	6.06

Hair form. C = .18

	No.	Straight F.	Straight I. F.	Low Waves F.	Low Waves I. F.	Deep Waves F.	Deep Waves I. F.	Curly F.	Curly I. F.
I	95	3	6.20	19	24.27	23	18.59	50	45.95
II	35	5	2.28	12	8.89	5	6.85	13	16.93
III	54	4	3.52	16	13.79	8	10.56	26	26.12

Hair texture. C = .12

	No.	Coarse F.	Coarse I. F.	Medium F.	Medium I. F.	Fine F.	Fine I. F.
I	98	1	1.55	68	69.63	29	26.82
II	36	1	.57	29	25.58	6	9.85
III	56	1	.88	38	39.79	17	15.33

Eyes, obliquity. C = .16

	No.	Absent F.	Absent I. F.	sm. F.	sm. I. F.	+ F.	+ I. F.	++ F.	++ I. F.	Mean
I	98	76	80.98	10	8.25	11	8.25	1	.52	8.93
II	36	33	29.75	2	3.03	1	3.03	..	..	2.78
III	56	48	46.27	4	4.72	4	4.72	..	..	5.36

Nasion depression. C = .18

	No.	Absent F.	Absent I. F.	sm. F.	sm. I. F.	sm. F.	sm. I. F.	+ F.	+ I. F.	++ F.	++ I. F.	Mean
I	98	3	1.55	4	4.64	38	41.78	41	38.68	12	11.35	40.31
II	36	..	..	2	1.71	18	15.35	10	14.21	6	4.17	39.58
III	56	..	..	3	2.60	25	23.87	24	22.10	4	6.48	40.41

Nasal root height. C = .15

	No.	sm. F.	sm. I. F.	sm. F.	sm. I. F.	+ F.	+ I. F.	++ F.	++ I. F.	+++ F.	+++ I. F.	Mean
I	98	..	..	13	12.38	64	62.93	20	21.66	1	.52	52.22
II	36	..	..	5	4.55	23	23.12	8	7.96	..	..	52.83
III	56	1	.29	6	7.07	35	35.96	14	12.38	..	..	52.90

Nasal root breadth. C = .12

	No.	sm. F.	sm. I. F.	sm. F.	sm. I. F.	+ F.	+ I. F.	++ F.	++ I. F.	Mean
I	98	1	.52	66	64.99	30	31.98	1	.52	32.75
II	36	..	..	25	23.87	11	11.75	..	..	32.64
III	56	..	..	35	37.14	21	18.27	..	..	34.38

Nasal bridge height. C = .11

	No.	sm. F.	sm. I. F.	+ F.	+ I. F.	++ F.	++ I. F.	+++ F.	+++ I. F.	Mean
I	98	7	8.25	65	62.41	25	26.82	1	.52	54.98
II	36	4	3.03	20	22.92	12	9.85	..	..	55.56
III	56	5	4.72	36	35.67	15	15.33	..	..	54.47

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Nasal bridge breadth. C = .13

	No.	sm. F.	sm. I. F.	+ F.	+ I. F.	++ F.	++ I. F.	Mean
I	98	45	44.87	52	51.58	1	1.55	38.78
II	36	19	16.48	17	18.95	..	..	36.80
III	56	23	25.64	31	29.48	2	.88	40.62

Nasal profile. C = .17

	No.	Concave F.	Concave I. F.	Straight F.	Straight I. F.	Convex F.	Convex I. F.	Concavo-Convex F.	Concavo-Convex I. F.
I	98	15	14.44	39	44.36	40	36.11	4	3.09
II	36	3	5.30	21	16.29	12	13.26		
III	56	10	8.25	26	25.35	18	20.63	2	1.77

Nasal tip thickness. C = .24

	No.	sm. F.	sm. I. F.	sm. F.	sm. I. F.	+ F.	+ I. F.	++ F.	++ I. F.	Mean
I	98	2	1.55	34	40.75	57	47.97	5	7.74	42.35
II	36	..	..	21	14.97	13	17.62	2	2.84	36.94
III	56	1	.88	24	23.28	23	27.41	8	4.42	42.64

Nasal wings. C = .21

	No.	Compressed F.	Compressed I. F.	Medium F.	Medium I. F.	Flaring F.	Flaring I. F.
I	98	31	35.59	65	61.38	2	1.03
II	36	20	13.07	16	22.55		
III	56	18	20.34	38	35.07		

Lips, membranous thickness. C = .23

	No.	Absent F.	Absent I. F.	sm. F.	sm. I. F.	sm. F.	sm. I. F.	+ F.	+ I. F.	++ F.	++ I. F.	Mean
I	98	1	.52	1	3.61	63	56.74	29	34.04	5	3.61	34.57
II	36	..	..	3	1.33	18	20.84	14	12.50	1	1.33	36.11
III	56	..	..	3	2.06	29	32.42	23	19.45	1	2.06	36.50

Lips, eversion. C = .15

	No.	Absent F.	Absent I. F.	sm. F.	sm. I. F.	+ F.	+ I. F.	++ F.	++ I. F.	Mean
I	98	28	26.30	46	46.42	19	22.18	5	3.09	25.25
II	36	10	9.66	16	17.05	10	8.15	..	..	25.00
III	56	13	15.03	28	26.53	14	12.67	1	1.77	26.34

Chin prominence. C = .14

	No.	sm. F.	sm. I. F.	+ F.	+ I. F.	++ F.	++ I. F.	Mean
I	98	36	35.07	56	59.32	6	3.61	42.34
II	36	13	12.88	23	21.79	..	..	40.97
III	56	19	20.04	36	33.89	1	2.06	41.78

Lambdoid flattening. C = .26

	No.	Absent F.	Absent I. F.	sm. F.	sm. I. F.	+ F.	+ I. F.	++ F.	++ I. F.	Mean
I	98	21	20.63	16	15.47	36	38.68	25	23.21	41.56
II	36	11	7.58	2	.57	17	14.21	6	8.53	37.50
III	56	8	11.79	12	8.84	22	22.10	14	13.26	43.75

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BLOOD GROUPS AND OBSERVATIONS

Again, as with the pigment analysis, contingencies have been worked out between the first three blood groups and a number of observations. In quantitative criteria the means have also been given. As with the pigment types, differences between groups are more apparent and probably more significant in observations than in measurements. The soft parts of the body show themselves to be more susceptible to racial changes caused by the infiltration of alien pigment and blood group elements than is the skeleton, at least where all strains are dolichocephalic to begin with. Nevertheless the contingencies for the blood groups are far less significant than those for pigment types.

Skin color yields a coefficient below the significant range, yet since there are proportionately twice as many lights in Group II as in either of the others, the conclusion that II is the light skinned element is unavoidable. The coefficient for freckling is much higher, yet the differences in frequencies no greater. Freckling apparently goes with Group I, or with the recessive blood element in mixture.

In beard color the coefficient is low and the frequencies indicative of little differentiation. If any is lighter than the others, it is Group I. In eye color the coefficient is significant. The score indicates Group II definitely lightest eyed, and I darkest. Group II owes its condition to a lumping in the category of even mixture. All three groups are about equal in proportion of pure lights.

In hair form Group II is straightest, and Group I curliest. In hair texture Group II has most medium and fewest fine. Neither of these contingencies yield satisfactory coefficients. In eye obliquity it is apparent that Group II is connected with a straight axis, even though the coefficient be low.

In the nose, the heights yield higher coefficients as one goes upward, and the breadths yield higher ones on the way down. The least depression, the highest root, and the highest bridge go with Group II. The narrowest root, bridge, and tip likewise belong to this grouping. Group II has the straightest nasal profile and the most compressed nasal wings.

As is to be expected, the nasal tip thickness shows the highest coefficient, one which is unquestionably significant, as is that of the wings. The other nasal features are significant as well in that they show consistent trends throughout, culminating in the tip of the nose.

In the membranous thickness of the lips a significant coefficient is found, showing Group I to be thinnest. In taking second place Group II is merely repeating the performance of the Blond pigment type. In lip eversion, however, Group II shows the slightest degree. The latter contingency is not significant. In prominence of the chin, another character presenting a low coefficient, Group II is unexpectedly weakest. The coefficient of lambdoid flattening is curiously very high, with Group II showing the least and III the most. This associates Group III with the Eastern rather than with the Nomadic morphological type.

On the whole, there is a slight tendency noticeable for Blood Group II to identify itself with blondism of skin and eye and with extreme leptorrhiny; and for Group III to associate itself with the physical type prevalent in the area of its greatest influence.

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TABLE 135. SENHAJA AND RIF, COMPARISON OF NOSE MEASUREMENTS AND NASAL INDICES

		Nose Height	Nose Breadth	Nasal Index
Senhaja	I	54.63	34.52	63.33
Rif	I	54.31	34.11	63.09
Senhaja	II	51.31	35.54	68.29
Rif	II	54.39	33.50	61.66
Senhaja	III	54.86	33.14	60.57
Rif	III	53.73	34.25	64.07

SENHAJA, NOSE MEASUREMENTS AND NASAL INDEX

In order to avoid useless detail, only the measurements and index of the nose have been seriated for the Senhajan blood group series. Since the numbers of cases in Groups II and III are so small, no attempt at determining constants of variation and error have been made. When we compare this data directly with the corresponding Riffian means, we see at once that our conclusions are to be reversed. In the Senhaja it is Group II which is shortest and broadest nosed, with an index far in excess of the others. Groups I and III, on the other hand, approximate the same values in both the Rif and Senhaja. The observations will perhaps serve to amplify or explain this peculiar situation.

TABLE 136. BLOOD GROUPS, CONTINGENCIES: SENHAJA

Skin color. C = .38

	No.	Light F.	Light I. F.	Medium F.	Medium I. F.	Dark F.	Dark I. F.	Medium and Dark : Light
I	27	16	13.79	5	8.62	6	6.40	1 : 1.33
II	13	6	6.64	7	4.15	..	..	1 : .86
III	7	2	3.57	3	2.23	2	1.19	1 : .40

Beard color. C = .15

	No.	Black F.	Black I. F.	Dark Brown F.	Dark Brown I. F.	Reddish-Brown F	Reddish-Brown I. F.	Light Brown F.	Light Brown I. F.	Light F.	Light I. F.
I	24	9	10.05	5	5.45	4	3.73	5	3.73	1	1.12
II	13	7	5.44	2	2.95	2	2.07	2	2.07		
III	6	2	2.51	3	1.40	1	.98	..	..	1	.27

Eye color, degree of pigment. C = .49

	No.	Black F.	Black I. F.	Dark Brown F.	Dark Brown I. F.	Light Brown F.	Light Brown I. F.	++ Dark F.	++ Dark I. F.	Even F.	Even I. F.	++ Light F.	++ Light I. F.	Score
I	27	1	.57	10	10.34	5	5.17	1	2.72	5	4.02	5	4.74	7.07
II	13	..	..	6	4.98	3	2.49	..	..	1	1.94	3	2.21	7.31
III	7	..	..	2	2.47	1	1.34	3	.60	1	1.04	..	..	7.00

Hair form. C = .42

	No.	Straight F.	Straight I. F.	Low Waves F.	Low Waves I. F.	Deep Waves F.	Deep Waves I. F.	Curly F.	Curly I. F.
I	25	..	..	3	3.89	5	6.52	17	13.59
II	13	1	.29	2	1.94	3	3.39	7	7.22
III	7	..	..	2	1.07	4	1.87	1	3.89

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Eyes, obliquity. C = .18

	No.	Absent F.	Absent L. F.	± F.	± L. F.	+ F.	+ L. F.	++ F.	++ L. F.	Mean
I	27	23	23.55	2	1.98	1	1.15	1	.57	6.48
II	13	11	11.34	1	.83	1	.55	..	..	5.77
III	7	7	6.11	..	..	..	..	..	..	0

Nasal tip thickness. C = .39

	No.	± F.	± L. F.	+ F.	+ L. F.	++ F.	++ L. F.	Mean
I	27	1	.57	14	14.36	10	8.04	2	4.02	37.50
II	13	..	..	5	6.91	4	3.87	4	1.94	48.08
III	7	..	..	6	3.72	..	..	1	1.04	32.14

Nasal wings. C = .24

	No.	Compressed F.	Compressed L. F.	Medium F.	Medium L. F.	Flaring F.	Flaring L. F.
I	27	8	8.62	18	17.23	1	1.15
II	13	3	4.15	9	8.30	1	.55
III	7	4	2.23	3	4.47		

Lips, eversion. C = .41

	No.	Absent F.	Absent L. F.	± F.	± L. F.	+ F.	+ L. F.	++ F.	++ L. F.	Mean
I	27	1	1.72	12	12.06	13	12.06	1	1.15	37.96
II	13	..	..	7	5.81	5	5.81	1	.55	38.48
III	7	2	.45	2	3.13	3	3.13	..	..	28.57

Chin prominence. C = .24

	No.	± F.	± L. F.	+ F.	+ L. F.	+ F.	+ L. F.	Mean
I	27	1	.57	8	8.62	18	17.81	41.20
II	13	..	..	6	4.15	7	8.57	35.71
III	7	..	..	1	2.23	6	4.62	46.43

SENHAJA, BLOOD GROUPS AND OBSERVATIONS

In skin color a high coefficient appears which makes Group I the lightest. Group II is not darkest, but is certainly dissimilar to the corresponding group in the Rif. In beard color here as in the Rif no significant variations appear. Group II again is darkest, judging by the slight differences present. In eye color Group II is darkest by far, and the other two run close together. This contingency yields a high coefficient.

In hair form again the coefficient runs high; Group I is the curliest haired, and Group II intermediate. Group III possesses the straightest hair. It will be recalled that the dark pigmented non-European element in the Senhaja is not as curly haired as the Zarket sample which is of Central Riffian type.

The eye obliquity, an important Senhajan feature, goes with Groups I and II and is lacking in the few individuals comprising Group III.

In the two most important observations of the nose, judging by the Riffian contingencies, Group II represents the invading negroid stock clearly, and Group III is most leptorrhine morphologically as well as metrically. In eversion of the lips Group II leads, and also possesses the weakest chins. In both these characters Group III comes out least negroid.

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In other words, the position which Group II maintains in the Rif is totally reversed in the Senhaja; instead of representing the blond, hyperleptorrhine stock, it represents that peculiar negroid blend which characterizes the most important invading element.

BLOOD GROUPS, CONCLUSIONS

The Rif-Senhaja area presents a complex blood group problem. As is to be expected in any marginal area, the fundamental blood group is strong in the center of the region. In the east, and to a certain extent in other border sections, the B mutation, or Group III, has infiltered in sufficient quantity to alter the original condition. The A mutation, or Group II, has on the other hand encroached on the earlier pattern in the Senhaja. The central Rif is divided into a section in which II is greater than III, and one in which the reverse is true. In the Galiya, which we have seen to act in other things as a secondary archaic nucleus, a mixture is found indicating a faint survival of an earlier condition comparable to that of the portion of the central Rif in which II is greater than III. The problem then arises: what was the original blood-formula of the central blond stock; Group I alone, or a combination of I and II, with I numerically greatest?

A study of measurements and indices, while largely negative, shows that the most leptorrhine type contains a high element of Group II. Observations further show that skin and eye blondism and morphological hyperleptorrhiny are also associated with Group II. In the Senhaja, on the other hand, Group II comes out the least leptorrhine, darkest, and in everything but hair form most negroid.

The only possible conclusion from this evidence is that the original Blond type contained a minority element of Group II blood, which survives under partial submergence in Galiya; that a strong Group III strain came in from the east, influencing most of the eastern Rif strongly, and substituting itself for II as minority factor in most of the central Rif. A negroid strain, the usual Senhajan intrusive type, brought a reënforcement of Group II into Taghzuth and the tribes near it. There is no genetic relationship between the two Group II elements which is discernible from this evidence. Blonds and Negroids both bear it in different regions, the first as a recessive and the second as an intrusive character. Group III seems to date its appearance by the arrival of the thick-set, disharmonic, Eastern morphological type, although the Nomadic or Zenatan invaders may have borne this element as well.

The connection between blonds in Europe and blonds in Africa must have continued to exist until after the A mutation took place in the original Nordic stock, or until after that stock as a whole had acquired the element from wherever it originated, unless, as is least likely, both received it independently later. Either of the first two conclusions would thrust the date of that acquisition back farther than has usually been supposed. If we consider the Nordic type to have had two origins, an African and a European, then we must postulate a second coincidence in regard to their blood groupings. The association between Group III and an element which depends upon a brachycephalic infusion for its disharmonic character may serve as a link with other brachycephals. The strong association in the Senhaja between Group II and a non-European brunet platyrrhine type cannot be explained from the present material.

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CHAPTER XXV

CULTURE, TRADITION, AND RACE. CONCLUSIONS REGARDING BERBER ORIGINS

CULTURE AND RACE

The distribution of cultural traits in northern Morocco shows us that the earliest pattern survives in the mountainous nucleus of the Rif, with Beni Amart as the chief center, and Beni Urriaghel and the northwestern fringe of Gzennaya included within the concentrated area. Old social institutions, having no direct association with changes in environment, stretch out eastward across Beni Said to form a secondary and less intense nucleus in Galiya. Material culture of archaic pattern has the same center as the social institutions, but being partly dependent upon an abundance of coniferous timber it has abandoned the east, which is deforested, and extends westward in survival across the still heavily forested mountains of the Senhaja Sghir.

The northern arm of the Sahara which culminates in the Garet has served as the diffusion route for cultural influences of nomadic inspiration, and has tended to bisect the original pattern of social distribution. In the west, the valley of the Wergha has served as a much-used highroad over which alien institutions have been carried; and others have crept across the Jebala through the western tribes, which speak Arabic, and through the Ghomara. In the northwestern Rif commercial navigation and the establishment of a religious center have tended to minimize Riffian culture in the tribes of Mtiwa, Mestassa, Beni Bu Frah, Beni Itteft, and Targuist.

Such in brief is the cultural picture. On the whole, racial differentiation within the fairly homogenous group which characterizes this area tends to follow the same geographical tendencies as culture. Owing to the incomparability of the types of data, and the differences in designation of sub-areas, statistical comparison is impossible; nevertheless such is the general agreement that a cursory comparison can be made.

The area in which the older social pattern is retained is precisely that in which the blond, North European racial type survives in greatest purity. Although in general it is hazardous to associate race with culture, in the present area each owes its survival to its geographical inaccessibility. One cannot say that the Nordic type originated this culture, or brought it with it; probably of the two the racial type is far the older; all that one can say is that of recognizable racial and cultural types these two are the oldest and survive in the same place for the same reason.

The region to the south and east of this center of refuge is occupied by a taller, heavier boned, and darker haired type, obviously secondary chronologically to the blonder type. It is improbable that that type was wholly or even largely responsible for the diminution of Riffian cultural elements in the east, since it is found in the Gzennaya associated with a high degree of Central Riffian culture, both social and material. Most of the Gzennaya measured came from that northwestern part of the tribe. Another element which seems so old that its effects upon Central Riffian culture are likewise imperceptible is a diffuse Negroid or

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Mediterranean, which avoids the very center of the old culture area, although being located in other parts of it. This type seems to have had no perceptible effect upon the strongly preserved forest culture of the Senhaja, where the negroid element is most in evidence.

One can trace the Saharan or Hamitic racial type in the regions in which intrusive cultural elements seem concentrated, and this type is responsible in part at least for the diffusion of nomadic cultural traits into the eastern Rif. Either it or a Negroid type, or both, brought the Senhajan peculiarities into Taghzuth, Ktama, and the surrounding region. The Ghomaran elements may have been brought by either the mesocephalous broad jawed type, by this latter, or by both.

Thus we can make but two definite associations between culture and race in northern Morocco: that of the earliest racial type with the oldest surviving cultural pattern, and that of the most recent racial type with the most recent cultural diffusions, excluding of course the European. On the whole, racial analysis shows earlier conditions and movements more clearly than does cultural analysis, since naturally the heredity of racial characteristics is more exact in its operation and more conservative than that which must be taught and learned. The cultural analysis is nevertheless of invaluable service in demarcating refuge areas and diffusion routes, thus helping to interpret the fuller evidence of race.

TRADITION AND RACE

Tradition attributes autochthonous ancestry to the people living in the area typified by the greatest concentration of the blond North European type, thus supporting the contribution of cultural evidence. In the east, ancestry is often attributed to Zenatan and Arab sources. Here, however, the eponymous forebears of the various family groups represent an infusion of the Saharan type not yet strong enough to have changed the general characteristics of the group. The Eastern type must have come in so long ago that it cannot be explained away by tradition. In the Senhaja, tradition attributes old Christian ancestry to the tribes least unlike the Riffians, and to Taghzuth and Ktama, ancestors from Segguia el Hamra, who came into a region formerly inhabited by people "like Shluh," in the case of Taghzuth, and by no one, in the case of Ktama. After having visited Ktama one finds it remarkable that human beings inhabit it even today. These Shluh-like people probably represent an older negroid population whom the Senhajan ancestors, probably of the general Saharan type, assimilated. In Ghomara the same nebulous "Shluh" were found and traditionally dislodged. The Ghomaran ancestors came from Segguia el Hamra earlier than did the Senhajan ancestors, and hence the similarity of the Ghomaran lighter type to the "Guanche" element in the Canary Islands may represent a real connection. The similarity of the name Ghomara to Gomera, the island on which this type was especially strong, may possibly indicate this relationship, although such tenuous philological connections should not be stressed. A Saharan element either accompanied or followed the mesocephalous Ghomaran type into the Ghomara.

On the whole, these traditions indicate rather well the general succession of racial positions and movements in northern Morocco, in so far as we have been able to reconstruct them. If the racial elements had been more different from each other skeletally our task would have been easier. As it is, cumulative tendencies within a slightly varied group have of necessity served as criteria.

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The general trend which these tendencies have revealed bears a connection not only with the local traditions, but also with the traditions concerning the early origins of the whole Berber group.

According to Ibn Khaldun all Berbers are descended from two individuals each named Berr, who were not related, and both of whom the Arab historian naturally enough descends from Semitic characters.[1] These two Berrs are supposed to have come into North Africa, and their descendants to have have subdivided into many of the present Berber groups. Notable among these are the Senhaja, Ghomara, Masmuda, Huara, and Zenata. Some writers postulate an invasion of Africa shortly before the Christian era by one Ifrikos, who came from Arabia, bringing with him the Senhaja and Ketama families.[2]

It is not profitable to dwell too long upon these theories, which are not proper Berber traditions but garbled Arab versions of them. The significant points about them are two: that the Senhaja, Ghomara, and Zenata are pictured as invaders and are classed as desert nomads; and that there is no traditional group held responsible for the parentage of the families of the central Rif. According to Marmol (who follows Ibn er-Raḳiḳ) there were two kinds of Berbers, "African Berbers," and "Shluh."[3] The African Berbers were nomadic and considered themselves aristocrats. The Shluh were the lowly inhabitants of the mountains, the farmers and house-dwellers. From time to time, according to Marmol, certain branches of the illustrious families would be defeated by their enemies and forced to take to the hills, where they would be assimilated by the mountaineers. In this way they would give their names to the groups adopting them, as their local progeny increased. They would also perhaps cause slight changes culturally and racially.

The Senhaja, using the name in its entire designation and not as we have been employing it locally, is a widespread group of peoples, including the Tuareg, the Braber, and our own Northern Senhaja, who form a tiny part of the whole and an erratic excrescence of the main stock. Most of the Senhaja are nomadic, and they cover a large part of the Sahara. Even the Braber, who live in the Middle Atlas, retain nomadic habits despite their present environment, living in houses only in the winter. It is said that the Braber tribes have been pushing each other northward over the Middle Atlas and up the Muluya; in the memory of living men tribal locations have shifted in this direction. It would be logical to consider the Northern Senhaja the pre-Islamic peak of this movement, later bisected by the Arab invasions. On the other hand, their tradition connecting them with Rio d'Oro would imply an older movement.

The Ghomara are located, according to early writers, along the Atlantic coast, in regions which they do not now inhabit. This traditional or historic location would serve to connect them with the coastal region opposite the Canary Islands. The present day Ghomara are again only a dislocated section of a widespread family. According to Marmol,[4] the only true ones of the Ghomara are the Beni Grir, the others being really what he calls "Shluh," in other words, indigenous agriculturalists.

The main body of the Zenata lies outside of Morocco to the south and east, but a definite sequence of them extends up the Muluya watercourse to the main nucleus.

[1] Ibn Khaldun, *Histoire des Berbères* (tr. Mac Guckin de Slane), vol. I, p. 167 *seq.*
[2] *Ibid.*, vol. I, p. 185.
[3] Marmol, *Descripcion d'Affrica*, Book III, chap. 24.
[4] *Ibid.*, Book III, chap. 67.

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These traditions, muddled as they are, and especially Marmol's interpretation of them, do, I believe, indicate something of value. They suggest the conclusions which we have so tediously extracted from the present material, that the Berbers are divided racially as well as culturally into two sections: the sedentary, agricultural, historically recessive type, European in racial affiliations; and the dominant nomadic group which comes from the south and east, and is Saharan or Hamitic in racial origin. Considering the linguistic evidence from the Canary Islands,[1] and the rôle the desert type has played in cultural diffusion, one is inclined to ascribe to this group the Hamitic element in Berber languages. One may also suppose an earlier linguistic as well as cultural pattern to have existed along the northwestern Mediterranean littoral, one more truly allied in pre-Indo-European times to the countries across the sea than is the case today. Racially the connections extend farther afield to the north of Europe, but whether the connecting thread ran across the Straits of Gibraltar or around the Mediterranean cannot be answered. If the pre-Berber or at least pre-Saharan cultural affiliations of the northern littoral were Bronze Age or Neolithic, its racial affiliations must go back even farther. In the light of the present evidence I do not see how it would be possible more recently to derive from Europe the North African blonds, scattered remnants as they are, perched in mountain refuges and stony islands, in the latter of which they were living in the Neolithic when discovered.

Summary: Of the pre-Hamitic or pre-Saharan inhabitants of northern Africa there were probably several racial types, a blond North European; a round headed type which Bertholon and Chantre [2] found in oases, along the Tunisian coast, and in the island of Jerba, and which probably produced in mixture the disharmonic "Guanche" type,[3] our own "Eastern" type, and the mesocephalous Ghomara; and a classical Mediterranean type. Personally I believe that the importance of the third has been greatly exaggerated. It may exist and flourish in other parts of North Africa, but in the part intimately covered by the present investigation it is of nebulous character if it is present at all.

It is impossible to say which of these types is the oldest. Some appear older in some regions, others in other regions. In the Rif the blond type seems to have stratigraphic priority, and its presence in Kabylia, the Aures, and the Canary Islands surely does not imply that it was recent in any of those regions.

The chief difference between the conclusions which automatically derive themselves from this study and those of Hooton's careful analysis of the Canary Island problem, is that in the Rif the Nordic type is older than the sub-brachycephalic mixed blonds, whereas in the Canaries the element bearing the round headed tendencies is as old as if not older than the blond.[4] Our Egyptian evidence also indicates that the blond strain was western. Probably the African Nordic type had its early focus in the north of Morocco, and the element which produced the round headed and disharmonic Berber types, which brought the broad jaw into Africa, followed the Atlas from northeast to southwest, from Tunis to the Canary Islands, working northward from this diagonal route in various waves, one of which brought the Ghomara.

Hooton finds a Negroid Mediterranean strain oldest in the Canaries.[5] These islands must have been slower to change both racially and culturally than our corner of the con-

[1] Hooton, *The Ancient Inhabitants of the Canary Islands*, pp. 16–19.
[2] *La Berberie Oriental*, pp. 641, 645, and maps.
[3] Hooton, *Canary Islands*, p. 218 *seq.* [4] *Ibid.*, p. 299. [5] *Ibid.*, p. 298.

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tinent. Such a type, scattered in the Rif, is unquestionably old there, but it cannot truthfully be called older than the Nordic, while the technique of this investigation indicates it to be younger.

The history of North Africa has been a succession of cultural and racial whitewashings from the south and east. A people Hamitic or Saharan, call them what you will, swept over it at some early period and brought Berber speech, desert culture, and a refined brunet racial type. Arabs have swept over it, bringing in Islam and the concurrent pattern of culture. Saharan peoples have continued their northward drive well into modern times; the Zenata are a relatively late branch of them. Negroes have come or been brought in, broadening the noses, darkening the skins, forging iron, and brutalizing the lower religious sects of the people. Finally, the French and Spanish have entered, bringing modern civilization which will inevitably stir and ferment the racial and cultural orders, causing changes; destruction, growth, the breakdown of regional isolation, and so great an eventual homogeneity that the curious facts recorded in this volume will become legends, and finally linger in the attic of distorted human memories.

Searching beneath the Berber and Arab blankets, beneath the Negroid seepings and the European scaldings, it is still possible to discern the relics of a long bygone age, a time when northern Morocco was nearer to Europe culturally, and a still dimmer time when the races of North Africa and of Europe were the same. The old elements, a Nordic, an early pre-Alpine brachycephal, and a diffuse Negroid which evolved into the Mediterranean, disharmonic mixtures of several of these; the roster of old North African races reminds one of the Europe of the late Palaeolithic and early Neolithic, and especially of the periods in between. Had this welter of early types been allowed to work out its destiny undisturbed, our work would have been easier; as it is, early North African skeletal material is needed before our problem may be solved.

By chance this corner of North Africa in which we have chosen first to work is the asylum of the first of these types, an African Nordic. In determining that this race is at the bottom of the Riffian physical composition we wish to avoid the critical fire which is poured in these days on all so brave or foolhardy as to use the word "Nordic"; let it be understood that the word here means a race and not a frame of mind; head, hair, eyes, and nose, and not an Olympian psychology. That the Riffians are brave and honorable men, and most pleasant companions, is neither here nor there.

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BIBLIOGRAPHY

ABDERRAHMAN BEN ABDULLAH BEN 'IMRAN BEN 'AMIR ES-SA'DI, Tarikh es-Soudan. Text and Translation. Translated by O. Houdas. Paris, Ernest Leroux, 1900.

ALBENIZ, VICTOR RUIZ, España en el Rif. Madrid, Biblioteca Hispania, 1922.

——, El. Riff. Madrid, Imprenta de Juan Fueyo, 1912.

AMAT, CHARLES, Le Mzab et les Mzabites. Paris, Challamel et Cie., 1888.

ARANZADI, T. DE, "Observaciones Anthropometricas en los Carcereños," *Actas de la Sociedad Española de Historia Natural*, 2nd series, Vol. III (XXIII), Session de Enero.

ARTBAUER, OTTO C., Riffpiraten und Ihre Heimat. Stuttgart, Verlag von Strecker und Schröder, 1911.

ATGIER, E. A., "Les Touareg à Paris," *Bulletin et Mémoirs de la Société d'Anthropologie*, 5th series, Vol. X, pp. 222–243. Paris, 1909.

BARRAS DE ARÁGON, F. DE LAS, "Notas sobre índices obtenidos de medidas tomados en vivo, de sujetos naturales de la Provincia de Sevilla y sus limitrofes," *Memorias de la Sociedad Española de Antropologia, Etnografia, y Prehistoria*, Vol. II. Madrid, 1923.

BASSET, HENRI, Essai sur la Litterature des Berberes. Algiers, Jules Carbonel, 1920.

——, La Culte des Grottes au Maroc. Algiers, Jules Carbonel, 1920.

BATES, ORIC, The Eastern Libyans. London, Macmillan and Company, Ltd., 1914.

EL BEKRI, Description de l'Afrique Septentrionale. Traduite par Mac Guckin de Slane. Algiers, Adolphe Jourdan, 1913.

BERTHOLON, L., and CHANTRE, E., Recherches Anthropologiques dans la Berberie Orientale. Lyon, A. Rey, 1913.

BIARNAY, S., Etude sur les Dialectes Bérbères du Rif. Paris, Ernest Leroux, 1917.

BRUNEL, RÉNÉ, Essai sur la Confrerie Religieuse des Aissaoua au Maroc. Paris, Paul Geuthner, 1926.

BRYN, HALFDAN, and SCHREINER, K. E., Die Somatologie der Norweger. Oslo, I Kommisjon Hos Jacob Dybward, 1929.

CANDOLLE, ALPHONSE DE, The Origin of Cultivated Plants. New York, D. Appleton and Co., 1885.

CASTRO, FERNANDEZ DE, Guelaia y Qebdana. Malaga, Zambrana Hermanos, 1911.

CAUDEL, M., L'Afrique du Nord, Les Premieres Invasions Arabes. Paris, Imprimerie Nationale, 1900.

CHENIER, LOUIS SAUVEUR DE, Recherches Historiques sur les Maures. Paris, chez l'Auteur, 1787.

DAVENPORT, CHARLES B., and LOVE, ALBERT G., Army Anthropometry. Washington, 1921.

DAVIS, WILLIAM STEARNS, An Outline History of the Roman Empire. New York, The Macmillan Company, 1911.

DELBREL, GARIEL, Geografia General del Rif. Melilla, el Telegrama del Rif, 1911.

DENIKER, JOSEPH, The Races of Man. London, Walter Scott, 1900.

DEPONT, OCTAVE, and COPPOLANI, XAVIER, Les Confrèries Religieuses Mussulmanes. Algiers, Adolphe Jourdan, 1897.

DIXON, ROLAND B., The Building of Cultures. New York, Charles Scribner's Sons, 1928.

DOUTTÉ, EDMOND, En Tribu. Paris, Paul Geuthner, 1914.

DUVEYRIER, HENRI, La Derniere Partie Inconnue du Littoral de la Mediterranée, Le Rif. Paris, Ernest Leroux, 1888.

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Original from UNIVERSITY OF MICHIGAN

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FLOWER, WM. H., and LYDEKKER, RICHARD, Mammals Living and Extinct. London, Adam and Charles Black, 1891.

DE FOUCAULD, VICOMTE CHARLES, Reconnaissance au Maroc. Text and Plates. Paris, Challamel et Cie., 1888.

FOURNEL, HENRI, Etude sur la Conquête de l'Afrique par les Arabes. Paris, Imprimerie Imperiale, 1857. 2nd edition. Paris, Imprimerie Nationale, 1875.

FREJUS, SIEUR ROLAND, Relation of a Voyage made into Mauretania in Africk. London, W. Godbid, 1671.

FREUND, WILLIAM, Latin-English Dictionary. Edited by E. A. Andrews. New York, Harper and Brothers, 1855 *seq.*

FÜRST, CARL M., Index Tabellen zum Antropometrischen Gebrauche. Jena, Verlag von Gustav Fischer, 1902.

GAUTIER, E. F., Les Siècles Obscurs du Maghreb. Paris, Payot, 1927.

GENTIL, LOUIS, Le Maroc Physique. Paris, Librairie Felix Alcan, 1912.

GHIRELLI, ANGELO, Monografia de la Kabila de Beni Tuzin. Madrid, Graficas Reunidas, 1923.

——, El Norte de Marruecos. Melilla, Artes Graficas-Postal Expres, 1926.

GORING, CHARLES, The English Convict. London, Darling and Son, Ltd., 1913.

GOULD, B. A., United States Sanitary Commission Memoirs. New York, 1869.

GRESA DE CAMPS, SANTIAGO, Las Kabilas de Bocoya, Beniburiaga y Tlemsímana. Barcelona, F. Sanchez, 1903.

GSELL, STEPHANE, Histoire Ancienne de l'Afrique du Nord, Vol. I. Paris, Librairie Hachette et Cie, 1913.

HANOTEAU, A., and LATOURNEAU, A., La Kabylie, Vol. I. Paris, Imprimerie Nationale, 1872.

HANSEN, SOREN, "On the Physical Anthropology of the Faroe Islanders," *Journal of the Royal Anthropological Institute*, new series, Vol. XV, 1912.

HAUSMAN, LEON AUGUSTUS, "The Pigment Granules in Head Hair, a Comparative Racial Study," *American Journal of Physical Anthropology*, Vol. XII, No. 2, pp. 276–277, October–December, Washington, 1928.

D'HERCOURT, GILLEBERT, "L'Anthropologie de l'Algerie," *Mémoirs de la Société d'Anthropologie de Paris*, Vol. III, pp. 1–23. Paris, 1868.

HOOTON, EARNEST A., "The Ancient Inhabitants of the Canary Islands," *Harvard African Studies*, Vol. VII. Cambridge, Mass., Harvard University Press, 1925.

HOROWITZ, VICTOR J., Marokko. Leipzig, W. Friedrich, 1887.

HOYOS SAINZ, LUIS DE, "Un cuestionario de Demografia Etnografia," *Actas de la Sociedad Española de Antropologia, Etnografia, y Prehistoria*, Vol. I. Madrid, 1922.

——, "Etnografia Española," *Memorias de la Sociedad Española de Antropologia, Etnografia, y Prehistoria*, Vol. I, pp. 91–128. Madrid, 1922.

HOYOS SAINZ, LUIS DE, and ARANZADI, TELESFORO DE, "Un Avance a la Antropologia de España," *Anales de la Sociedad Espanol de Istoria Naturale*, Vol. XXI, 1892.

——, "Sur l'Anthropologie de l'Espagne," *Bulletin de la Société d'Anthropologie de Paris*, 4th series, Vol. IV. Paris, 1893.

——, "Vorläufige Mittheilung zur Anthropologie von Spanien," *Archiv für Anthropologie*, Vol. XXII, pp. 429–433. Braunschwieg, 1893–94.

HRDLIČKA, ALEŠ, The Old Americans. Baltimore, The Williams and Wilkins Co., 1925.

Digitized by Google

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Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google

IBN KHALDUN, Histoire des Berbères. Translated by Baron Mac Guckin de Slane; edited by Paul Casanova. 5 vols. Paris, Paul Geuthner, 1927.

JUSTINARD, COMMANDANT, Manuel de Berbère Marocain (Dialecte Rifain). Paris, Paul Geuthner, 1926.

KELLEY, TRUMAN L., Statistical Method. New York, The Macmillan Company, 1923.

KIDD, BERESFORD, J., A History of the Church to A.D. 461. Oxford, Clarendon Press, 1922.

LAOUST, E., Mots et Choses Berbères. Paris, Augustin Challamel, 1920.

LEGEY, DOCTORESSE, Contes et Légendes Populaires du Maroc. Paris, Ernest Leroux, 1926.

——, Essai de Folklore Marocain. Paris, Paul Geuthner, 1926.

LEO AFRICANUS, JOHN, Description de l'Afrique. Edited by Charles Schefer. 3 vols. Paris, Ernest Leroux, 1896.

LEYS, NORMAN M., and JOYCE, T. A., "Notes on a Series of Measurements from East Africa," *Journal of the Royal Anthropological Institute*, new series, Vol. XVI, 1913.

LIDDELL, HENRY G., and SCOTT, WILLIAM, A Greek-English Lexicon. 7th edition. New York, Harper and Brothers, 1882.

LIVI, RIDOLFO, Antropometria Militare. Rome, Presso il Giornale del Regio Esercito, 1898.

LUNDBORG, H., and LINDERS, F. J., The Racial Characters of the Swedish Nation. Stockholm, Swedish State Institute for Race Biology, 1926.

MAC AULIFFE, LÉON, and MARIE, AUGUSTE, "Variation de la Pigmentation des Yeux et des Cheveux chez les Peuples Latins," *L'Ethnographie*, 5th series, April 15, 1922.

MARCUS, LOUIS, Histoire des Wandales. Paris, Arthus Bertrand, 1836.

DEL MARMOL CARAVAIAL, LUYS, Descripcion de Affrica. 3 books. Granada, Casa de Réné Rabut, 1573. All references are to third book.

MARTIN, RUDOLF, Lehrbuch der Anthropologie. 3 vols. 2nd edition, Jena, Gustav Fischer, 1928.

MASPERO, GASTON, The Struggle of the Nations. London, Society for Promoting Christian Knowledge, 1896.

MEAKIN, BUDGETT, An Introduction to the Arabic of Morocco. London, Bernard Quaritch, 1891.

——, The Moorish Empire. London, Swan, Sonnenschein and Co., Ltd., 1899.

MENDELSSOHN, SIDNEY, The Jews of Africa. New York, E. P. Dutton and Co., 1920.

MICHAUX-BELLAIRE, M., Le Rif. Rabat, Bureau des Renseignments, 1925.

——, A Propos du Rif. Rabat, Bureau des Renseignments, 1926.

MORANT, G. M., "A First Study of the Craniology of England and Scotland." *Biometrika*, Vol. XVIII, p. 82, 1926.

MOULIERAS, AUGUSTE, Le Maroc Inconnu. 2 vols. Oran, D. Heintz, 1899.

——, Paris, Librarie Coloniale et Africane.

MUIR, SIR WILLIAM, The Caliphate, Rise, Decline, and Fall. Edinburgh, John Grant, 1924.

NOPCSA, BARON FERENCZ, Albanien, Bauten, Trachten, und Geräte Nordalbaniens. Berlin und Leipzig, W. de Gruyter Co., 1925.

OLDFIELD, THOMAS, "List of Mammals obtained by the Hon. Walter Rothschild, Ernst Hartert, and Carl Hilgest in Western Algeria during 1913." *Novitates Zoölogicae*, Vol. XX, pp. 586–591. 1913.

OLORIZ, F., "Distribution de l'Indice Cephalometrique en Espagne," *Bulletin de la Société d'Anthropologie*, 4th series, Vol. V. Paris, 1894.

OVILO Y CANALES, DON FELIPE, La Mujer Marroqui. Madrid, Libreria de Fernando Fé, 1881.

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Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google

PAPILLAULT, DR., "Sur les Populations de l'Aures," *Bulletin de la Societé d'Anthropologie*, 4th series, Vol. VIII, p. 538. Paris, 1897.

PARSONS, F. W., "The Color Index of the British Isles," *Journal of the Royal Anthropological Institute*, Vol. L, pp. 159–182. London, 1920.

——, "On the Long Barrow Race and its Relationship to the Modern Inhabitants of London," *Journal of the Royal Anthropological Institute*, Vol. LI, pp. 55–81, 1921.

PEARSON, KARL, Tables for Statisticians and Biometricians. Cambridge University Press, 1924.

PROCOPIUS, De Bello Vandalico. Text and translation by H. B. Dewing. 5 vols. London, W. Heinemann. New York, The Macmillan Company, 1914–28.

RANDALL-MAC IVER, DAVID, and WILKIN, ANTHONY, Libyan Notes. London, Macmillan and Company, Ltd., 1901.

RAWLINSON, GEORGE, (Translator), The History of Herodotus. 2 vols. Everyman's Library, No. 406. London, J. M. Dent & Sons, New York, E. P. Dutton and Co.

RIPLEY, WILLIAM Z., The Races of Europe. New York, D. Appleton and Co., 1899.

ROGER-MATHIEU, J., Memoires d'Abd el Krim. Paris, Librairie des Champs-Elysees, 1927.

ROGET, RAYMOND, Le Maroc Chez les Auteurs Anciens. Paris, Société d'Édition "Les Belles Lettres," 1924.

ROHLFS, GERHARD, Adventures in Morocco, etc. London, S. Low, Marston, Low, and Searle, 1874.

DE SAINT-MARTIN, M. VIVIEN, Le Nord de l'Afrique dans l'Antiquité. Paris, Imprimerie Imperiale, 1863.

SALE, GEORGE, The Koran (translation). London, William Teeg & Co., 1857.

SALLUST, Works. Translated by T. Gordon. London, 1744.

SCHREINER, ALETTE, Anthropologische Untersuchungen in Norge: Valle, Hålandsdal, und Eidfjord. Oslo, I Kommisjon Hos Jacob Dybward, 1930.

DE SEGONZAC, MIS., Voyages au Maroc (1899–1901). Paris, Librairie Armand Colin, 1903.

SERGI, G., The Mediterranean Race. London, Walter Scott, 1901.

SHAPIRO, HARRY L., "Descendants of the Mutineers of the *Bounty*." *Memoirs of the Bernice P. Bishop Museum*, Vol. XI, pp. 1–106. Honolulu, 1929.

SLOUSCHZ, NAHUM, "Une Voyage des Êtudes Juives en Afrique," *Memoirs de l'Institut Francaise*, 1st series, Vol. XII, 2nd edition.

——, "Hebraeo-Pheniciens et Judeo-Berbères," *Archives Marocaines*, Vol. XIV. Paris, Ernest Leroux, 1908.

SMITH, R. BOSWORTH, Carthage and the Carthaginians. London, Longmans, Green, and Co., 1897.

SNYDER, LAURENCE H., "Human Blood Groups, their Inheritance and Racial Significance," *American Journal of Physical Anthropology*, Vol. IX, pp. 233–263. Washington, 1926.

TOZZER, ALFRED M., Social Origins and Social Continuities. New York, The Macmillan Company, 1925.

VAN GENNEP, ARNOLD, "Les Poteries Peintes de l'Afrique du Nord," *Harvard African Studies*, Vol. II, pp. 235–298. Cambridge, Mass., Harvard University Press, 1918.

VAVILOV, NIKOLAI I., Studies on the Origin of Cultivated Plants. Leningrad, 1926.

VIRÉ, ARMAND, "La Kabylie du Djurdjura," *Bulletin de la Société d'Anthropologie*, 4th series, Vol. IV, p. 71, Paris, 1893.

VOINOT, L., Le Tidikelt. Oran, Imprimerie L. Fouque, 1909.

WAZAN, EMILY SHERIFA OF, My Life Story. London, E. Arnold, 1911.

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Original from UNIVERSITY OF MICHIGAN

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Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google

WENINGER, JOSEF (RUDOLF PÖCHS NACHLASS), Eine Morphologish-Anthropologische Studie. Vienna, Anthropologische Gesselschaft, 1927. . . . an 100 Westafrikanischen Negern. . .

WEISGERBER, H., Les Blancs d'Afrique. Paris, Octave Doin et Fils, 1910.

WESTERMARCK, EDWARD, Marriage Ceremonies in Morocco. London, Macmillan and Company, Ltd., 1914.

——, Ritual and Belief in Morocco. 2 vols. London, Macmillan and Company, Ltd., 1926.

WILLIAMS, GEORGE D., "Spanish-Maya Crosses in Yucatan," *Peabody Museum Papers*. Cambridge, Mass., Harvard University Press, 1931.

YULE, G. UDNEY, An Introduction to the Theory of Statistics. London, Charles Griffin and Co., Ltd., 1927.

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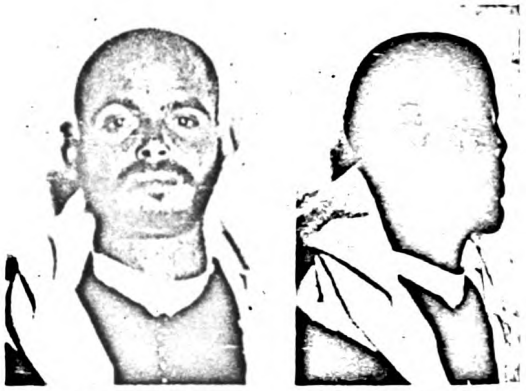
KEBDANA

Stature = 175.9
Cephalic Index = 76
Nasal Index = 59

Head Hair Black
Beard Black
Eye color Light-brown



Stature = 159.6
Cephalic Index = 78
Nasal Index = 70

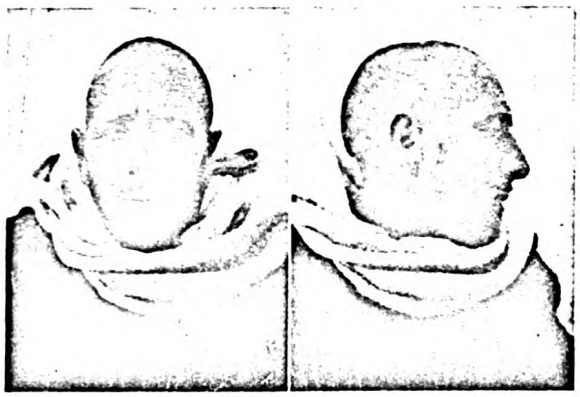
Head Hair Reddish-brown
Beard Light-brown
Eye color Gray-brown

S. = 169.4
C. I. = 76
N. I. = 64

H. H. Dark-brown
B. Reddish-brown
E. Dark-brown

S. = 175.7
C. I. = 76
N. I. = 67

H. H. Dark-brown
B. Reddish-brown
E. Green-brown



S. = 165
C. I. = 74
N. I. = 51

H. H. Dark-brown
B. Dark-brown
E. Blue

S. = 174.6
C. I. = 74
N. I. = 63

H. H. Gray
B. Reddish-brown
E. Green-brown

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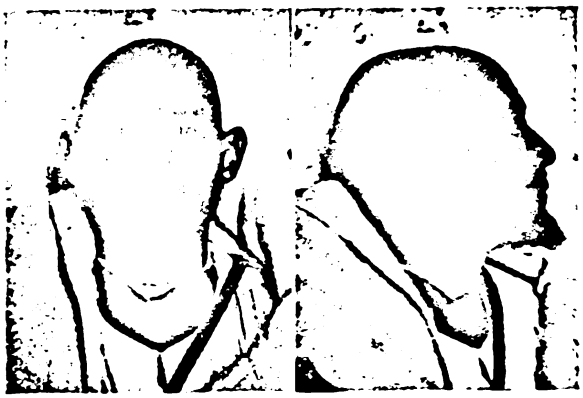
GALIYA, MAZUZA



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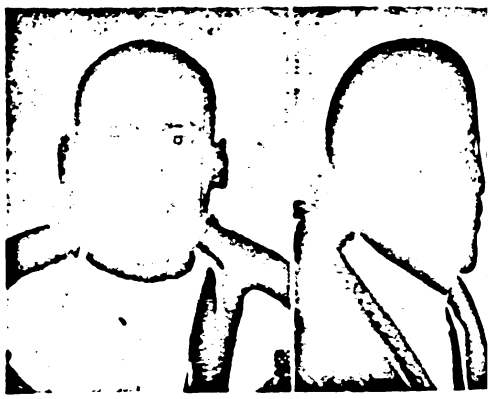
C. I. = 70
N. I. = 60

H. H. Black
B. Black
E. Green-brown



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C. I. = 75
N. I. = 71

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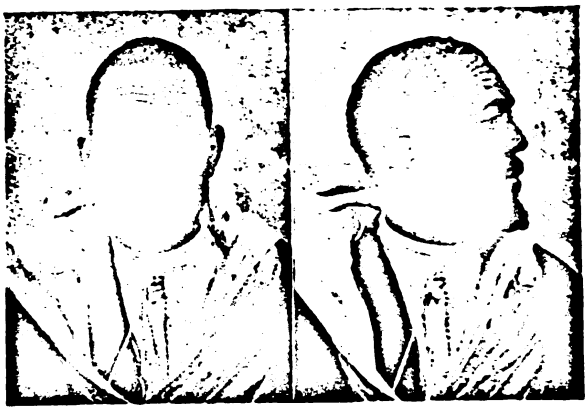
B. Black
E. Dark-brown

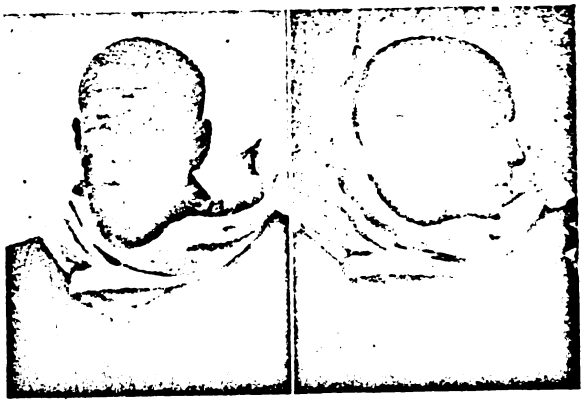


S. = 170.9
C. I. = 72
N. I. = 69

H. H. Black
B. Black
E. Green(++)-brown

S. = 174.3
C. I. = 80
N. I. = 63

H. H. Dark-brown
B. Dark-brown
E. Blue(++)



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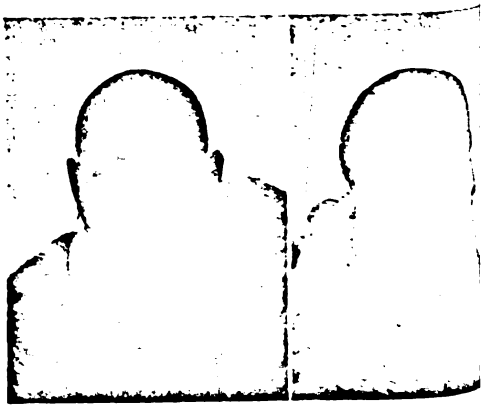
B. Golden
E. Green(++)-brown



S. = 165.7
C. I. = 75
N. I. = 60

H. H. Dark-brown
B. Light-brown
E. Grey-blue

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GALIYA, MAZUZA

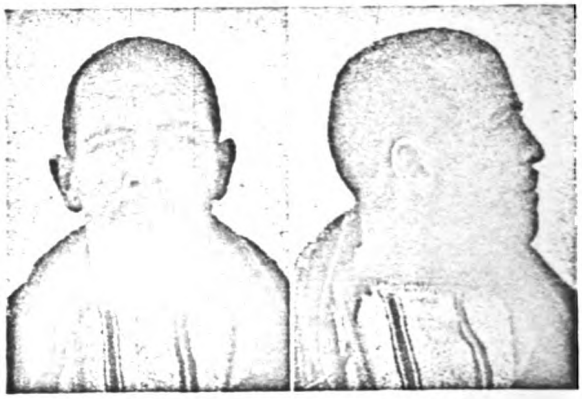
1.5
0
0

H. H. Black
B. Black
E. Green-brown

S. = 168.4
C. I. = 75
N. I. = 71

H. H. Black
B. Black
E. Dark-brown

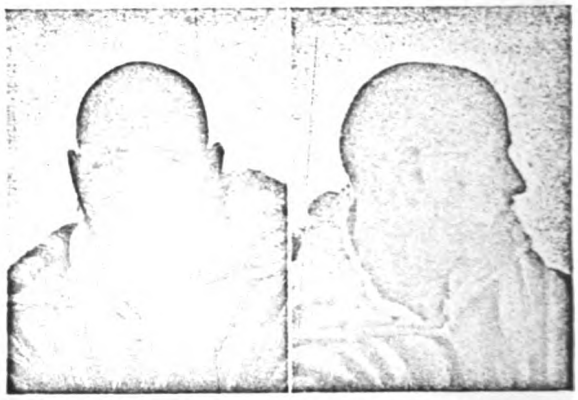
H. H. Black
B. Black
E. Green(++)-brown



S. = 174.3
C. I. = 80
N. I. = 65

H. H. Dark-brown
B. Dark-brown
E. Blue(++)-brown

H. H. Dark-brown
B. Golden
E. Green(++)-brow



S. = 165.7
C. I. = 75
N. I. = 60

H. H. Dark-brown
B. Light-brown
E. Gray-brown

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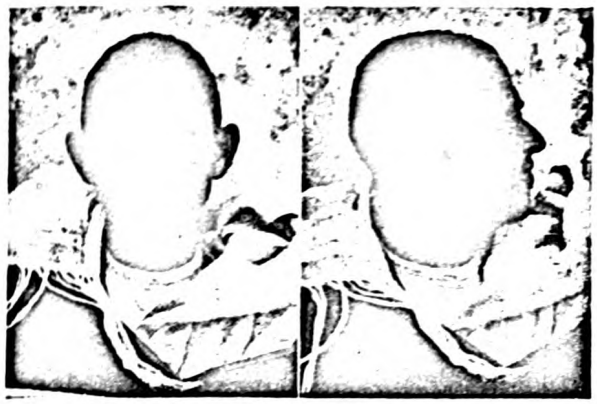
GALIYA, BENI SIDEL



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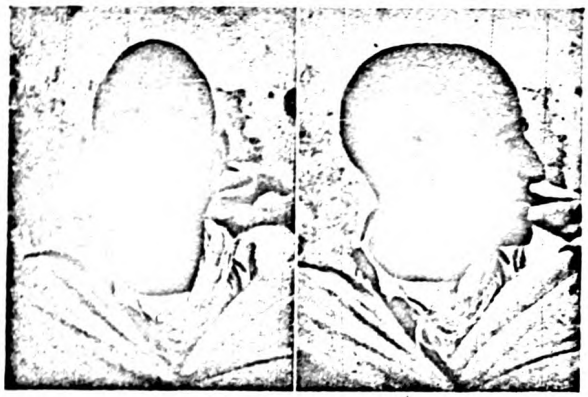
H. H. Dark-brown
B. Dark-brown
E. Blue

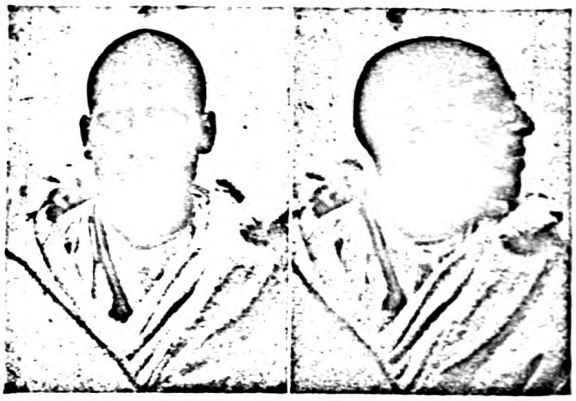
S. = 173.3
C. I. = 70
N. I. = 68

H. H. Dark-brown
B. Dark-brown
E. Green-brown



S. = 165.5
C. I. = 65
N. I. = 56

H. H. Light-brown
B. Golden-red
E. Blue (+++)-brown

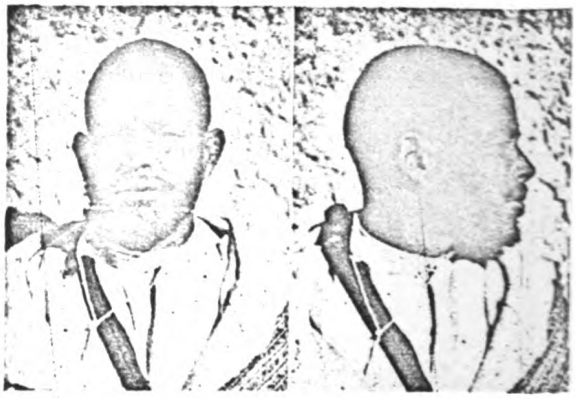


S. = 168.6
C. I. = 74
N. I. = 58

H. H. Black
B. Black
E. Gray-brown (++)

S. = 173.2
C. I. = 77
N. I. = 64

H. H. Black
B. Red
E. Gray-brown



S. = 168.1
C. I. = 76
N. I. = 59

H. H. Black
B. Black
E. Light-brown

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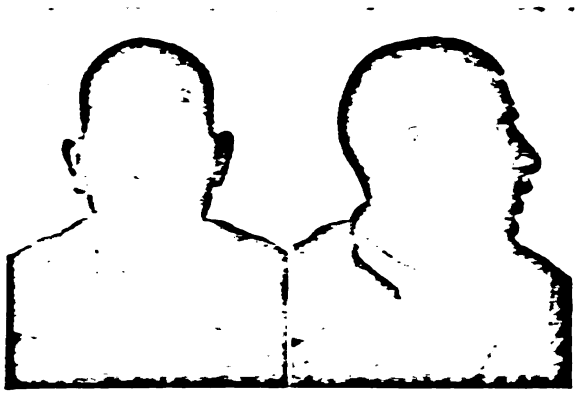
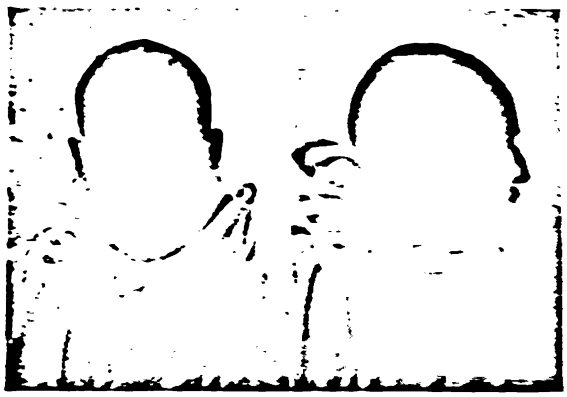
GALIYA, AIT SHISHER AND BENI BU YAFER



Ait Shisher

S. = 162.1
C. I. = 73
N. I. = 38

H. H. Black
B. Black
E. Green-brown



Beni Bu Yafer

S. = 166.3
C. I. = 74
N. I. = 52

H. H. [illegible]
B. [illegible]
E. [illegible]

Ait Shisher

S. = 168.1
C. I. = 77
N. I. = 63

H. H. Dark-brown
B. Dark-brown
E. Dark-brown

Ait Shisher

S. = 172.6
C. I. = 73
N. I. = 63

H. H. Black
B. Light-brown
E. [illegible]

Ait Shisher

S. = 159.5
C. I. = 73
N. I. = 74

H. H. Black
B. Dark-brown
E. Light-brown

Ait Shisher

S. = 163.2
C. I. = 78
N. I. = 58

H. H. [illegible]
B. [illegible]
E. [illegible]

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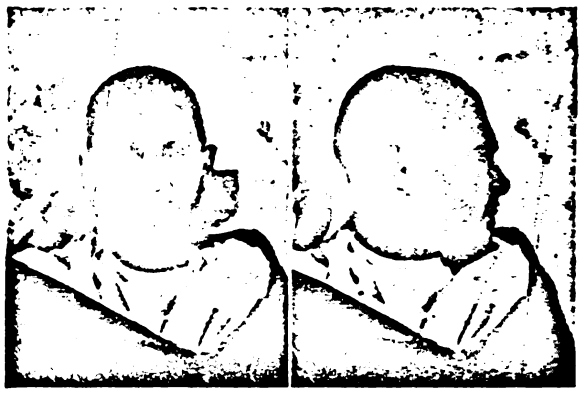
GALIYA, BENI BU IFRUR

S. = 166.6
C. I. = 76
N. I. = 69

H. H. Black
B. Black
E. Light-brown



S. (hunchback)
C. I. = 71
N. I. = 62

H. H. Dark-brown
B. Dark-brown
E. Green-brown

S. = 170.9
C. I. = 77
N. I. = 73

H. H. Black
B. Black
E. Gray-brown

S. = 160
C. I. = 72
N. I. = 65

H. H. ——
B. Light-brown
E. Gray-brown

S. = 174.4
C. I. = 75
N. I. = 62

H. H. Black
B. Black
E. Blue (+++)-brown

S. = 166.5
C. I. = 72
N. I. = 59

H. H. Black
B. Black
E. Green (++)-brown

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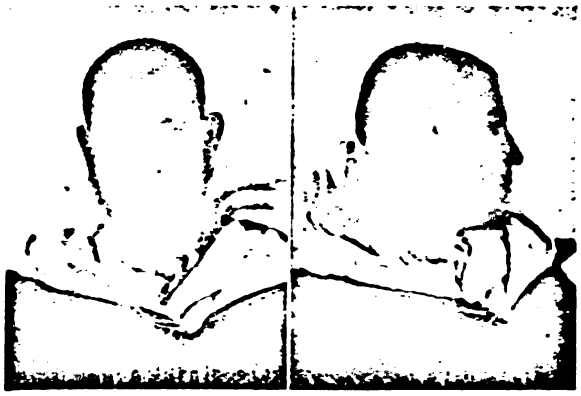
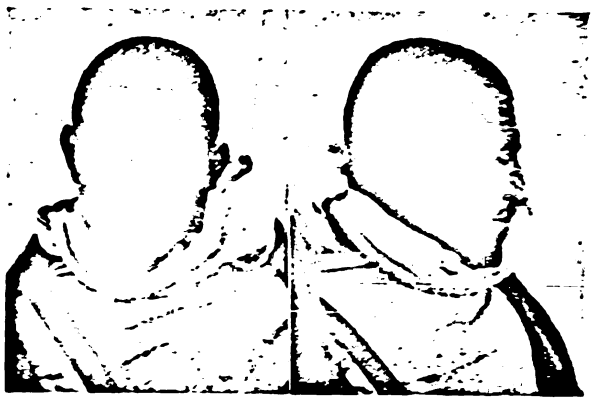
BENI BU YAHYI



S. = 175.2
C. I. = 76
N. I. = 57

H. H. Dark-brown
B. Light-brown
E. Green (++)-brown

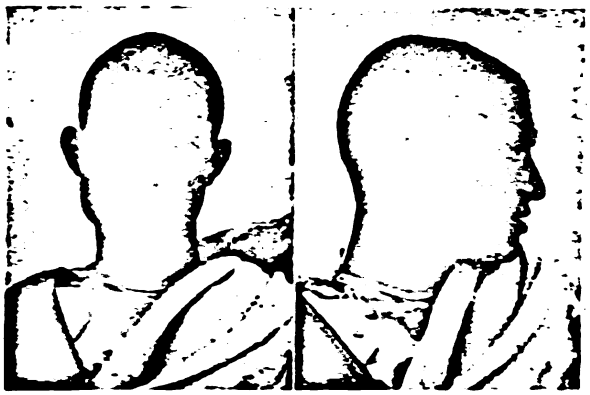


S. = 165.2
C. I. = 80
N. I = 51

H. H. Black
B. Black
E. Gray-brown

S. = 177.9
C. I. = 79
N. I. = 63

H. H. Black
B. Black
E. Blue (++)-brown



S. = 164.5
C. I. = 76
N. I. = 61

H. H. Dark-brown
B. ——
E. Green-brown

S. = 164.7
C. I. = 75
N. I. = 52

H. H. Dark-brown
B. Light-brown
E. Green (++)-brown

S. = 162
C. I. = 76
N. I. = 65

H. H. Dark-brown
B. Light-brown
E. Blue-brown

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METALSA

S. = 161.2
C. I. = 76
N. I. = 67

H. H. Black
B. Black
E. Dark-brown

S. = 170.4
C. I. = 74
N. I. = 68

H. H. Dark-brown
B. Light-brown
E. Dark-brown

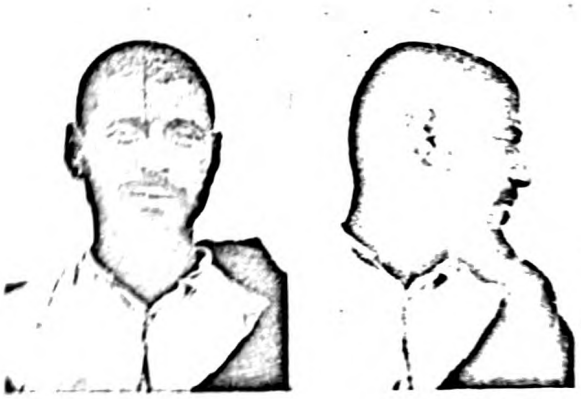
Ababda

S. = 168.9
C. I. = 74
N. I. = 73

H. H. Dark-brown
B. Dark-brown
E. Blue (++)-brown

S. = 179.6
C. I. = 80
N. I. = 67

H. H. Dark-brown
B. Dark-brown
E. Gray-brown



S. = 175.1
C. I. = 77
N. I. = 68

H. H. Black
B. Black
E. Blind

S. = 183.8
C. I. = 73
N. I. = 78

H. H. Black
B. Black
E. Light-brown

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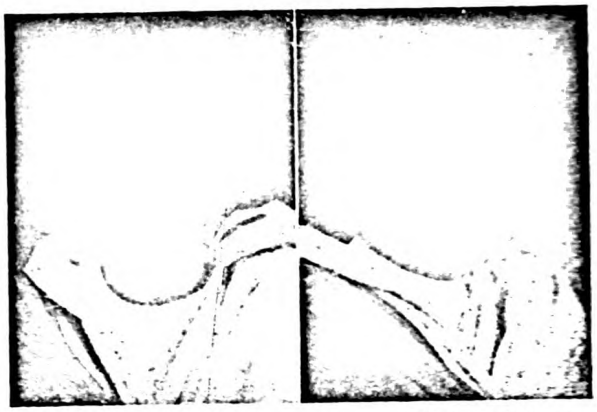
BENI SAID

S. = 173.8
C. I. = 78
N. I. = 75

H. H. Reddish-brown
B. Reddish-brown
E. Blue (+++)-brown

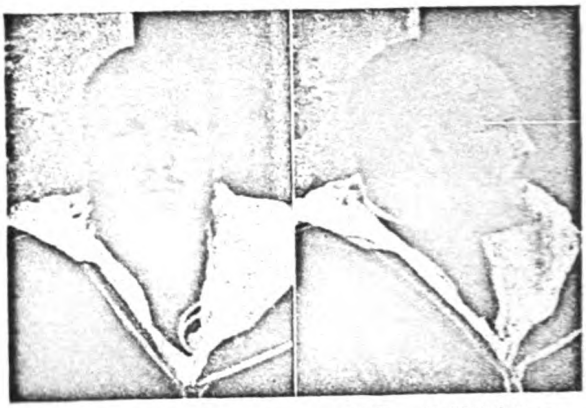


S. = 161.7
C.I. = 76
N. I. = 76

H. H. Dark-brown
B. Dark-brown
E. Green-brown

S. = 183.5
C. I. = 72
N. I. = 53

H. H. Dark-brown
B. Reddish-brown
E. Green-brown



S. = 164.9
C. I. = 77
N. I. = 67

H. H. = Reddish-brown
B. Light-brown
E. Blue (+++)-brown

S. = 167.2
C. I. = 77
N. I. = 57

H. H. Dark-brown
B. Light-brown
E. Green-brown

S. = 159.0
C. I. = 82
N. I. = 67

H. H. Dark-brown
B. ——
E. Dark-brown

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BENI ULISHK

S. = 169.3
C. I. = 71
N. I. = 69

H. H. Reddish-brown
B. Reddish-brown
E. Blue(+++)-brown

S. = 173.5
C. I. = 73
N. I. = 61

H. H. Dark-brown
B. Dark-brown
E. Blue(+++)-brown

S. = 166.8
C. I. = 77
N. I. = 63

H. H. Dark-brown
B. Reddish-brown
E. Green(+++)-brown

S. = 177.3
C. I. = 79
N. I. = 69

H. H. Dark-brown
B. Light-brown
E. Light-brown

S. = 177.1
C. I. = 74
N. I. = 64

H. H. Dark-brown
B. Dark-brown
E. Light-brown

S. = 172.7
C. I. = 72
N. I. = 59

H. H. Dark-brown
B. R[illegible]
E.

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TAVERSIT

S = 169.1
C.I = 74
N.I = 68

H.H Black
B Black
E Gray-brown

S = 171.7
C.I = 77
N.I = 83

H.H Dark-brown
B Reddish-brown
E Blue (—+)-brown

S = 175.3
C.I = 73
N.I = 58

H.H Black
B Black
E Gray-brown

S = 177.6
C.I = 76
N.I = 57

H.H Gray
B Gray
E Blue (—+)-brown

S = 172.5
C.I = 79
N.I = 92

H.H Black
B Black
E Blue (—+)-brown

S = 175.0
C.I = 77
N.I = 78

H.H Black
B Black
E Dark-brown

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TEMSAMAN

S. = 169.5
C. I. = 73
N. I. = 55

H. H. Dark-brown
B. Gray
E. Green(++)-brown

S. = 171.9
C. I. = 74
N. I. = 58

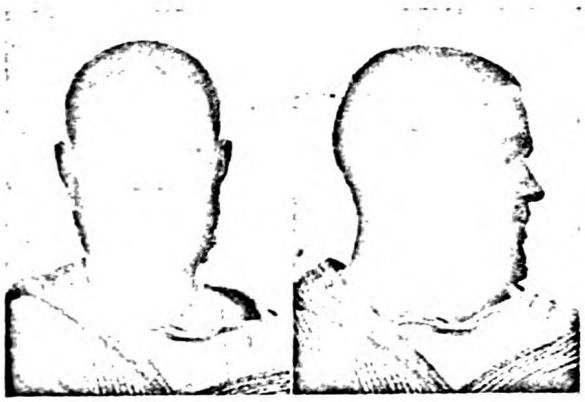
H. H. Dark-brown
B. Dark-brown
E. Dark-brown

S. = 154.1
C. I. = 74
N. I. = 66

H. H. Dark-brown
B. Light-brown
E. Green(++)-brown

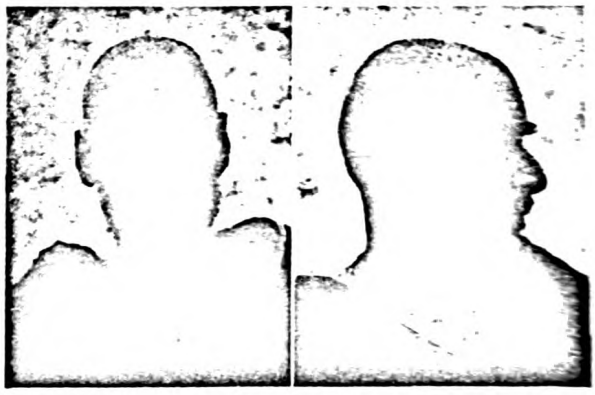
S. = 172.5
C. I. = 74
N. I. = 67

H. H. Dark-brown
B. Dark-brown
E. Green-brown



S. = 175.5
C. I. = 74
N. I. = 66

H. H. Dark-brown
B. Light-brown
E. Dark-brown



S. = 170
C. I. = 75
N. I. = 59

H. H. Dark-brown
B. Reddish-brown
E. Blue-brown

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BENI TUZIN

S. = 168.3
C. I. = 71
N. I. = 63

H. H. Dark-brown
B. Reddish-brown
E. Blue(+++)-brown

S. = 184
C. I. = 74
N. I. = 67

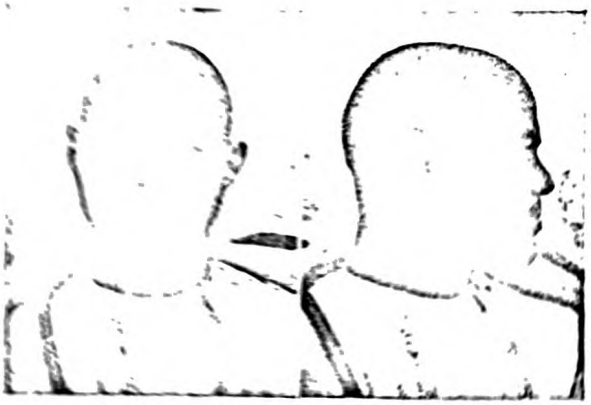
H. H. Dark-brown
B. Light-brown
E. Gray-brown

S. = 172.9
C. I. = 80
N. I. = 74

H. H. Black
B. Black
E. Light-brown

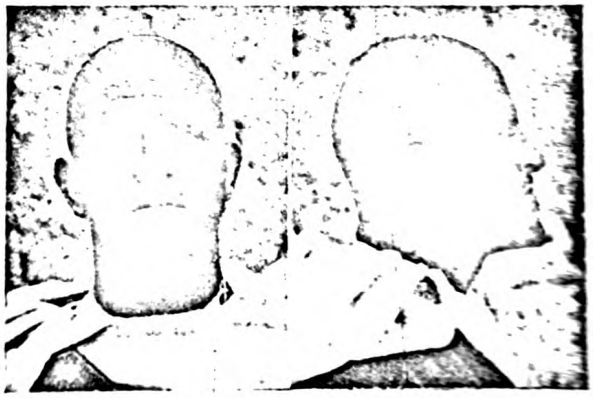
S. = 188.5
C. I. = 71
N. I. = 63

H. H. Black
B. Reddish-brown
E. Blue(++)-brown



S. = 172.7
C. I. = 76
N. I. = 69

H. H. Dark-brown
B. Reddish-brown
E. Dark-brown



S. = 173.1
C. I. = 82
N. I. = 69

H. H. Reddish-brown
B. Light-brown
E. Dark-brown

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GZENNAYA

S. = 174.3
C. I. = 73
N. I. = 63

H. H. Dark-brown
B. ——
E. Gray-brown

S. = 175.7
C. I. = 75
N. I. = 59

H. H. Light-brown
B. Light-brown
E. Light-brown

S. = 163.7
C. I. = 78
N. I. = 58

H. H. Dark-brown
B. Red
E. Left, Light-brown
Right, Green(++)-brown

S. = 173.0
C. I. = 78
N. I. = 58

H. H. Black
B. Black
E. Dark-brown

H. H. Reddish-brown
B. Reddish-brown
E. Gray-brown

S. = 171.
C. I.
N

H. H. Light-brown
B. Golden
E. Light-brown

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BENI URRIAGHEL

S. = 174.7
C. I. = 75
N. I. = 61

H. H. Light-brown
B. Golden
E. Blue(++)-brown

S. = 171.0
C. I. = 77
N. I. = 56

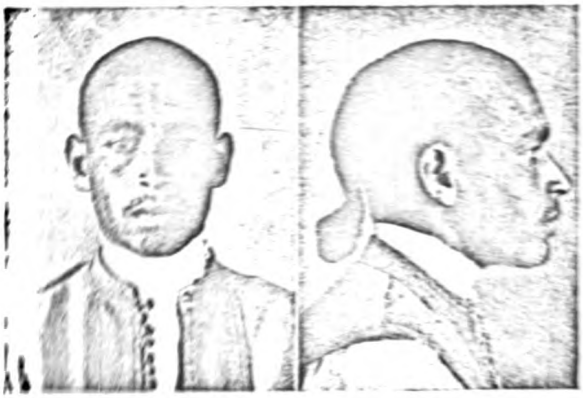
H. H. —
B. Light-brown
E. Green-brown

S. = 166.5
C. I. = 72
N. I. = 55

H. H. Black
B. —
E. Gray-brown

S. = 172.5
C. I. = 70
N. I. = 70

H. H. Light-brown
B. Light-brown
E. Green(++)-brown



S. = 169.8
C. I. = 73
N. I. = 66

H. H. Dark-brown
B. Dark-brown
E. Dark-brown

S. = 176.7
C. I. = 77
N. I. = 56

H.H. Reddish-brown
B. Reddish-brown
E. Green-brown

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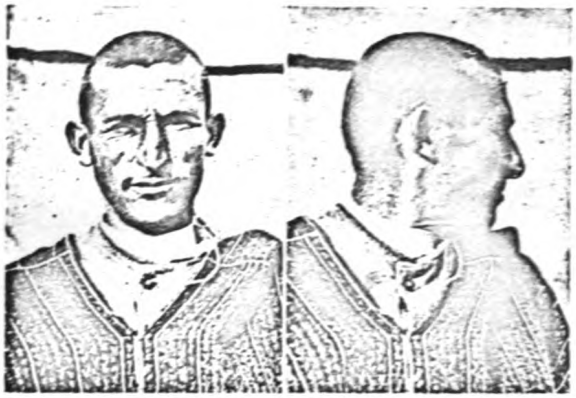
BENI URRIAGHEL

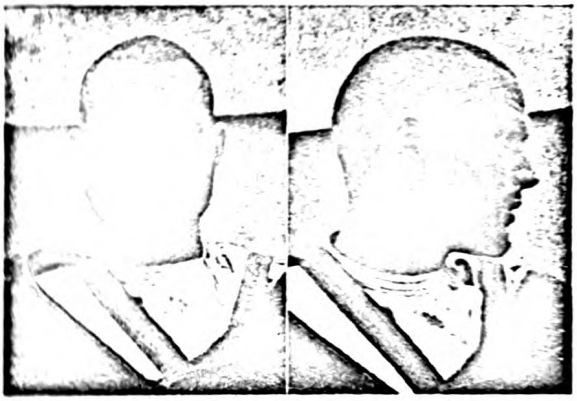
S. = 164.7
C. I. = 78
N. I. = 49

H. H. Black
B. Black
E. Light-brown



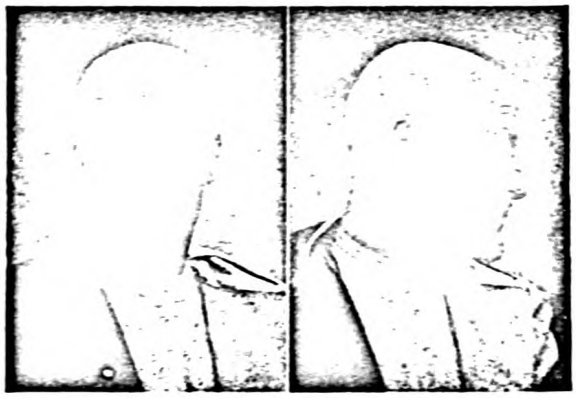
S. = 165.8
C. I. = 80
N. I. = 53

H. H. Light-brown
B. Golden
E. Green-brown(++)



S. = 161.5
C. I. = 73
N. I. = 68

H. H. Black
B. Reddish-brown
E. Green-brown

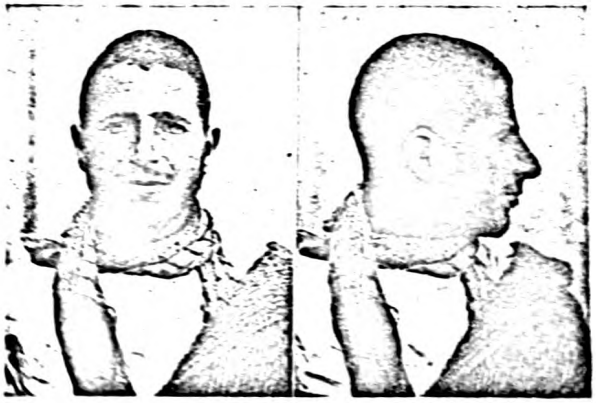


S. = 166.7
C. I. = 73
N. I. = 62

H. H. Black
B. Dark-brown
E. Blue(++)-brown

S. = 156.0
C. I. = 74
N. I. = 73

H. H. Dark Brown
B. Light-brown
E. Green-brown



S. = 174.7
C. I. = 76
N. I. = 53

H. H. Black
B. Black
E. Gray-brown

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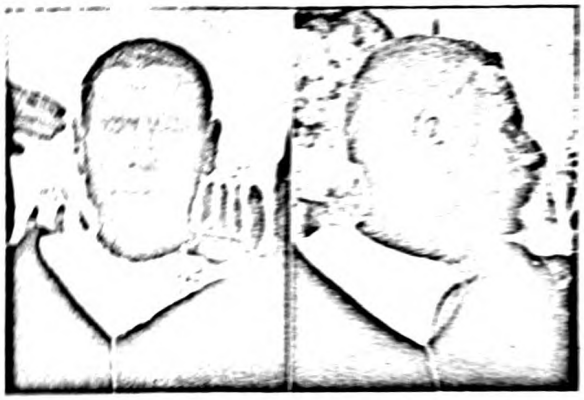
BENI AMART

S. = 173.3
C. I. = 77
N. I. = 60

H. H. Black
B. Light-brown
E. Gray-brown

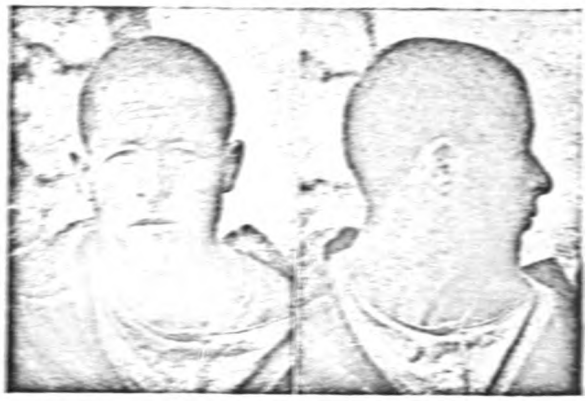
S. = 177.0
C. I. = 82
N. I. = 66

H. H. Light-brown
B. Golden-red
E. Blue



S. = 161.7
C. I. = 76
N. I. = 57

H. H. Reddish-brown
B. Red
E. Blue-brown(++)



S. = 153.3
C. I. = 80
N. I. = 54

H. H. Dark-brown
B. Ash-blond
E. Blue

S. = 163.3
C. I. = 76
N. I. = 56

H. H. Dark-brown
B. Golden-red
E. Green-brown

S. = 165.0
C. I. = 77
N. I. = 61

H. H. Dark-brown
B. Dark-brown
E. Light-brown

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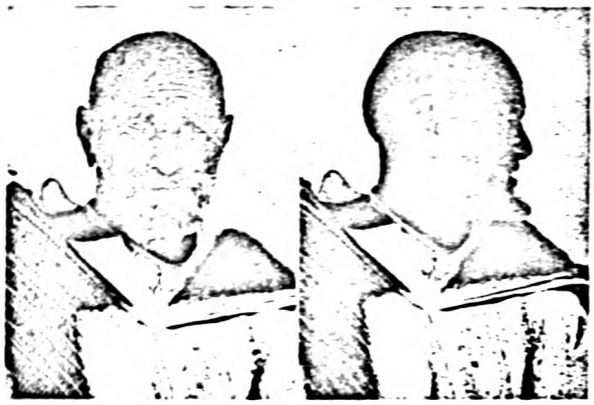
TARGUIST

S. = 167.8
C. I. = 73
N. I. = 61

H. H. Dark-brown
B. Red
E. Green-brown

S. = 167.3
C. I. = 74
N. I. = 71

H. H. Black
B. Black
E. Light-brown



S. = 161
C. I. = 71
N. I. = 65

H. H. Black
B. Light-brown
E. Blue(++)-brown

S. = 170.0
C. I. = 75
N. I. = 64

H. H. Black
B. Black
E. Green-brown

S. = 167.0
C. I. = 76
N. I. = 67

H. H. Reddish-brown
B. Reddish-brown
E. Blue-brown

S. = 166.1
C. I. = 78
N. I. = 66

H. H. Light-brown
B. Light-brown
E. Blue(+++)-brown

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BOKOYA

S. = 160.5
C. I. = 74
N. I. = 60

H. H. Dark-brown
B. Reddish-brown
E. Green-brown

S. = 166.7
C. I. = 76
N. I. = 54

H. H. Black
B. Reddish-brown
E. Light-brown

S. = 167.4
C. I. = 74
N. I. = 67

H. H. Black
B. Black
E. Dark-brown

S. = 168.2
C. I. = 71
N. I. = 53

H. H. Dark-brown
B. Gray
E. Dark-brown

S. = 167.5
C. I. = 74
N. I. = 64

H. H. Dark-brown
B. Reddish-brown
E. Green(++)-brown

S. = 167.7
C. I. = 73
N. I. = 70

H. H. Light-brown
B. Light-brown
E. Light-brown

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WESTERN MARITIME TRIBES

Beni Itteft

S. = 166.6
C. I. = 74
N. I. = 53

H. H. Dark-brown
B. Reddish-brown
E. Blue-brown (++)

Beni Itteft

S. = 179.5
C. I. = 74
N. I. = 62

H. H. Black
B. Black
E. Green-brown

Beni Itteft

S. = 166.9
C. I. = 75
N. I. = 56

H. H. Dark-brown
B. Light-brown
E. Light-brown

Beni Bu Frah

S. = 165.8
C. I. = 71
N. I. = 59

H. H. Dark-brown
B. Dark-brown
E. Gray-brown

Beni Itteft

S. = 167.4
C. I. = 75
N. I. = 48

H. H. Black
B. Black
E. Light brown

Mtiwa

S. = 168.9
C. I. = 75
N. I. = 57

H. H. Dark-brown
B. Light-brown
E. Green-brown (++)

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RIFFIAN WOMEN

Beni Urriaghel

Beni Urriaghel

S. = 151.2
C. I. = 73
N. I. = 56

H. H. Dark-brown
E. Green-brown(++)

Gzennaya

S. = 153.6
C. I. = 73
N. I. = 56

H. H. Black
E. Light-brown

Gzennaya

S. = 162.3
C. I. = 77
N. I. = 59

H. H. Black
E. Light-brown

Targuist

Galiya

Targuist

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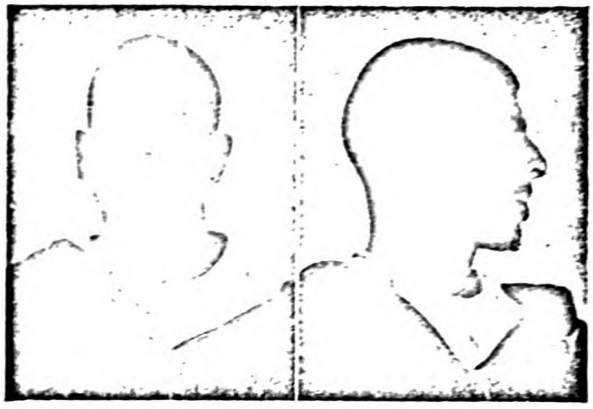
BENI MESDUY AND BENI GMIL



Beni Mesduy

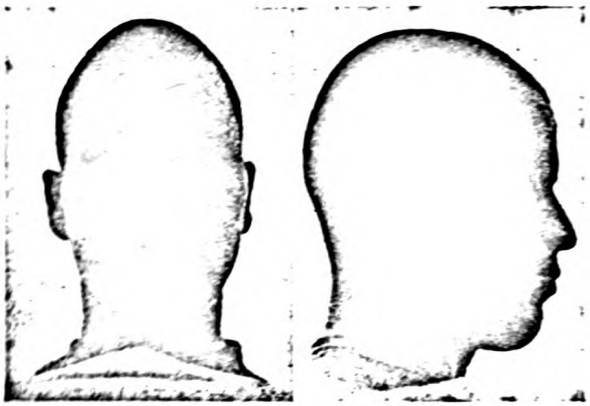
C. I. = 74
N. I. = 65
S. = 172.5

H. H. Black
B. Reddish-brown
E. Green(++)-brown

Beni Mesduy

S. = 160.8
C. I. = 80
N. I. = 73

H. H. Black
B. Black
E. Light-Brown



Beni Gmil

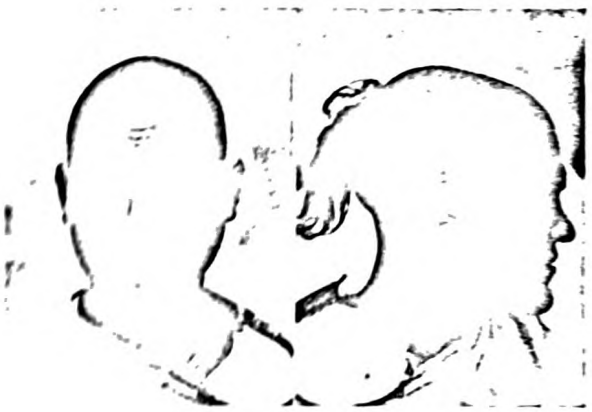
S. = 167.7
C. I. = 75
N. I. = 68

H. H. Black
B. Black
E. Light-brown

Beni Gmil

S. = 167.4
C. I. = 71
N. I. = 57

H. H. Dark-brown
B. Dark-brown
E. Green-brown(++)



Beni Gmil

S. = 147.6
C. I. = 71
N. I. = 76

H. H. Dark-brown
B. —
E. Green-brown(++)

Beni Gmil

S.
C. I.
N. I.

H. H. Dark-brown
B. Dark-brown
E. Green(++)-brown

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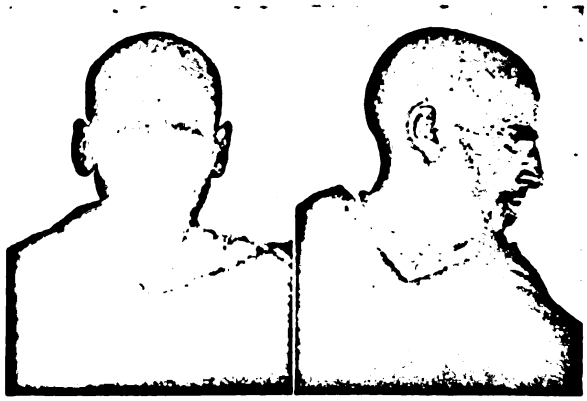
ZARKET

S. = 170.2
C. I. = 74
N. I. = 55

H. H. Dark-brown
B. Light-brown
E. Green-brown

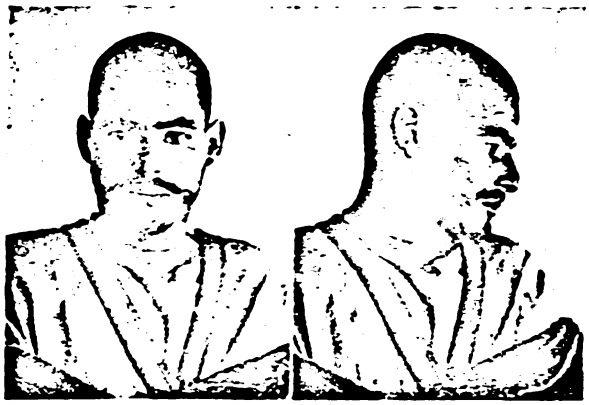
S. = 173.6
C. I. = 77
N. I. = 52

H. H. Dark-brown
B. Dark-brown
E. Gray-brown



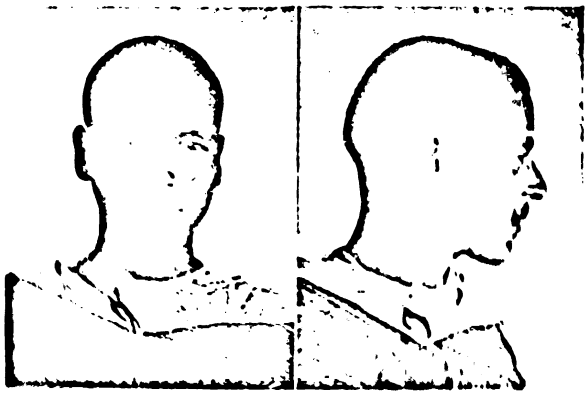
S. = 164.1
C. I. = 73
N. I. = 55

H. H. Dark-brown
B. Golden-red
E. Dark-brown



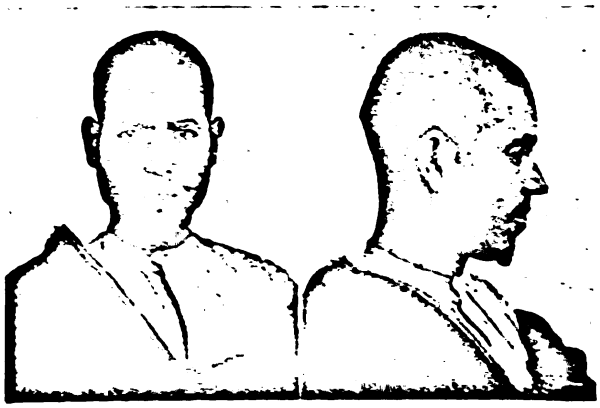
S. = 162.4
C. I. = 75
N. I. = 62

H. H. Reddish-brown
B. Reddish-brown
E. Blue(++)-brown



S. = 166.1
C. I. = 71
N. I. = 57

H. H. Dark-brown
B. Light-brown
E. Green-brown



S. = 167.6
C. I. = 73
N. I. = 62

H. H. Black
B. Black
E. Dark-brown

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BENI BU NSAR, BENI KHENNUS, BENI HAMID, BENI BU SHIBET, AND BENI BERBER

Beni Bu Nsar

S. = 181.8
C. I. = 74
N. I. = 71

H.H. Dark-brown
B. Dark-brown
E. Blue-brown

Beni Bu Shibet

S. = 177.6
C. I. = 77
N. I. = 60

H. H. Black
B. ——
E. Dark-brown

S. = 165.4
C. I. = 73
N. I. = 60

Beni Bu Shibet

H. H. Light-brown
B. Light-brown
E. Blue(+++)-brown

Beni Bu Nsar

Beni Khennus

Beni Bu Nsar

Beni Hamid

S. = 170.3
C. I. = 76
N. I. = 70

H. H

Beni Berber

S. = 165.5
[illegible] = 73
[illegible] = 57

H. H. Black
B. Black
E. Dark-brown

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TAGHZUTH

S. = 172.6
C. I. = 77
N. I. = 86

H. H. Black
B. Black
E. Dark-brown

S. = 163.8
C. I. = 73
N. I. = 65

H. H. Dark-brown
B. Light-brown
E. Green-brown

S. = 165.2
C. I. = 80
N. I. = 63

H. H. Dark-brown
B. Dark-brown
E. Dark-brown

H. H. Dark-brown
B. Dark-brown
E. Light-brown

H. H. Black
B. Black
E. Dark-brown

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TAGHZUTH

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TAGHZUTHI WOMEN

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KTAMA

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ARABOPHONE SENHAJA

Eastern, Marnissa

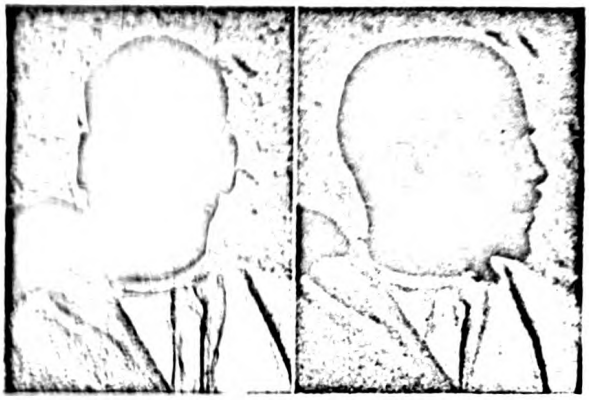
S. = 164.1
C. I. = 74
N. I. = 52

H. H. Reddish-brown
B. Red
E. Green-brown

Western

S. = 176.1
C. I. = 72
N. I. = 61

H. H. Black
B. Black
E. Green-brown



Eastern

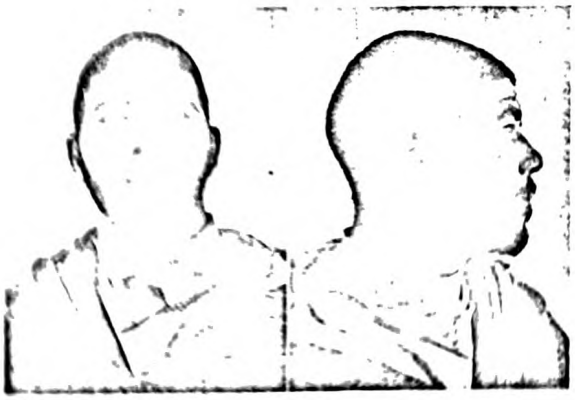
S. = 162.2
C. I. = 75
N. I. = 70

H. H. Black
B. Black
E. Light-brown

Western

S. = 169.1
C. I. = 71
N. I. = 58

H. H. Black
B. Black
E. Dark-brown



Western

S. = 166.8
C. I. = 74
N. I. = 73

H. H. Black
B. Light-brown
E. Dark-brown

Eastern

S. = 171.2
C. I. = 70
N. I. = 68

H. H. Dark-brown
B. Dark-brown
E. Green-brown (+ + + +)

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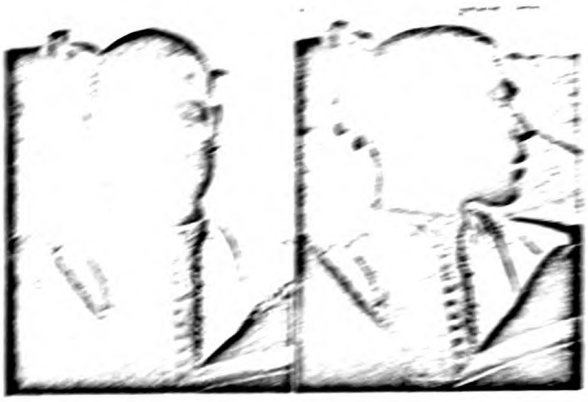
NEGROID TYPES



Temsaman

S. = 170.9
C. I. = 74
N. I. = 72

H. H. Black
B. Black
E. Dark-brown

Beni Urriaghel

S. = 159.6
C. I. = 73
N. I. = 59

H. H. Black
B. Black
E. Light-brown

Galiya

Beni Amart

S. = 179.6
C. I. = 72
N. I. = 61

H. H. Black
B. Black
E. Blue-brown (+ +)

A Sudanese Negro

Zarket

S. = 160.4
C. I. = 71
N. I. = 62

H. H. Black
B. Black
E. Green (+ +)

Gaennaya

S. = 164.7
C. I. = 76
N. I. = 62

H. H. Black
B. Black
E. Light-b

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GHOMARA

S. = 169.4
C. I. = 79
N. I. = 75

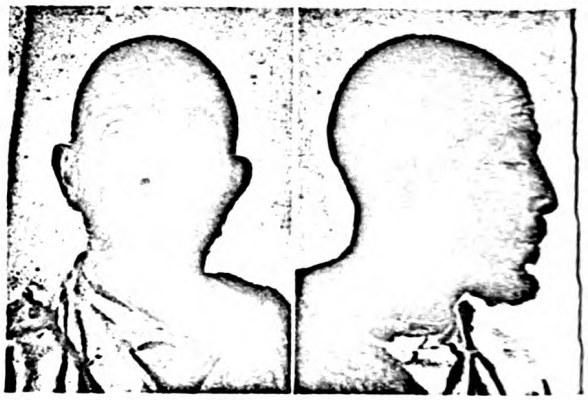
H. H. Dark-brown
B. Dark-brown
E. Gray-brown

S. = 165.3
C. I. = 71
N. I. = 78

H. H. Dark-brown
B. Dark-brown
E. Light-brown

S. = 166.3
C. I. = 76
N. I. = 64

H. H. Black
B. Black
E. Green-brown



S. = 164.1
C. I. = 84
N. I. = 62

H. H. Black
B. Black
E. Green-brown

S. = 138.5
C. I. = 77
N. I. = 70

H. H. Black
B. Light-brown
E. Green-brown

S. = 171.5
C. I. = 78
N. I. = 71

H. H. Dark-brown
B. Reddish-brown
E. Blue-brown

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SHESHAWEN

S. = 161.2
C. I. = 76
N. I. = 63

H. H. Black
B. Black
E. Light-brown

S. = 167.2
C. I. = 78
N. I. = 67

H. H. Gray
B. Gray
E. Dark-brown

S. = 164.7
C. I. = 78
N. I. = 68

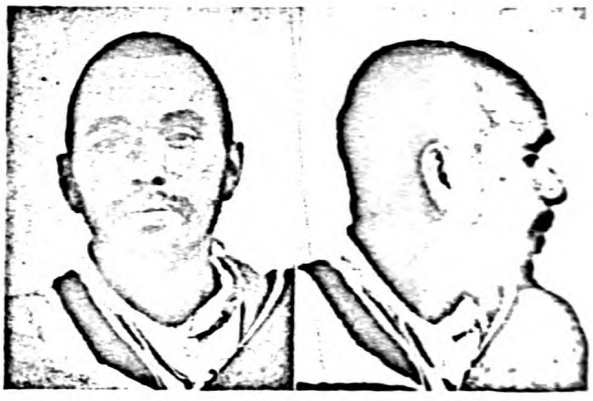
H. H. Dark-brown
B. Dark-brown
E. Dark-brown

S. = 171.9
C. I. = 77
N. I. = 75

H. H. Dark-brown
B. Dark-brown
E. Dark-brown

S. = 163.0
C. I. = 78
N. I. = 62

H. H. Black
B. Black
E. Light-brown



S. = 166.1
C. I. = 82
N. I. = 64

H. H. Dark-brown
B. Dark-brown
E. Dark-brown

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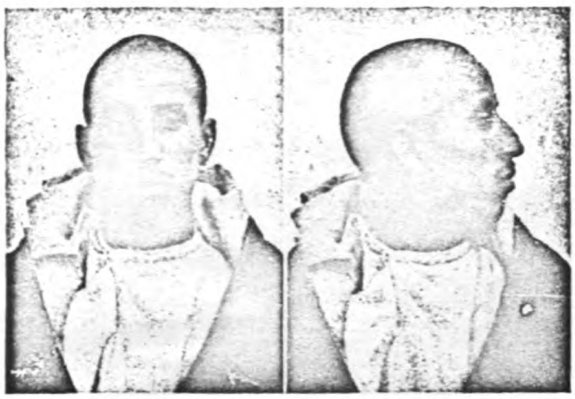
ARABS



Ulad Stut

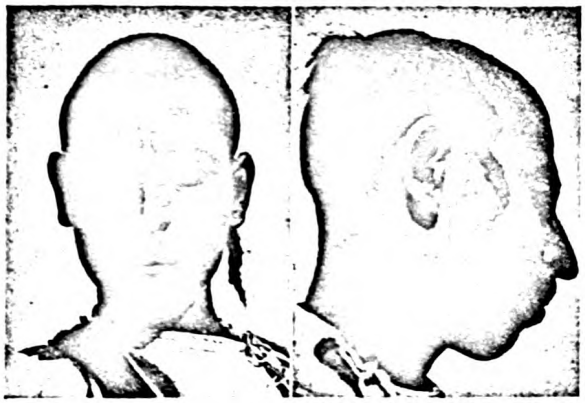
S. = 166.1
C. I. = 78
N. I = 57

H. H. Black
B. Black
E. Light brown

Shiadma

S. = 171.4
C. I. = 75
N. I. = 51

H. H. Black
B. Reddish-brown
E. Gray-brown



Shawia

S. = 161.0
C. I. = 72
N. I. = 63

H. H. Black
B. Black
E. Dark-brown

Ulad Stut

S. = 164.3
C. I. = 81
N. I. = 57

H. H. Light-brown
B. Light-brown
E. Gray-brown

Rehamna

H. = 173
[illegible]

H. H. Black
B. Black
E. Light-br

Rehamna

= 175.5
76

H. H. Gray
B. Gray
E. Green(++)-brown

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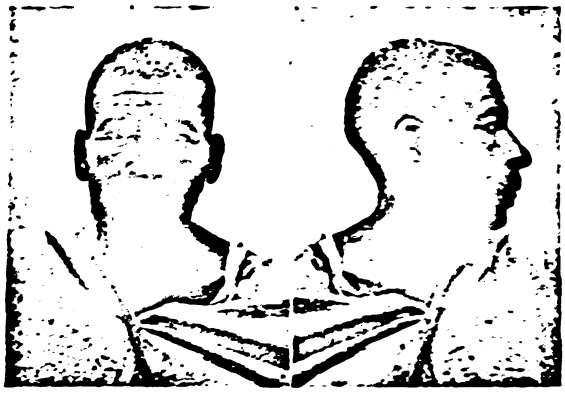
SHLUH

Glawa

S. = 168.9
C. I. = 78
N. I. = 61

H. H. Dark-brown
B. Dark-brown
E. Gray-brown



Msiwa

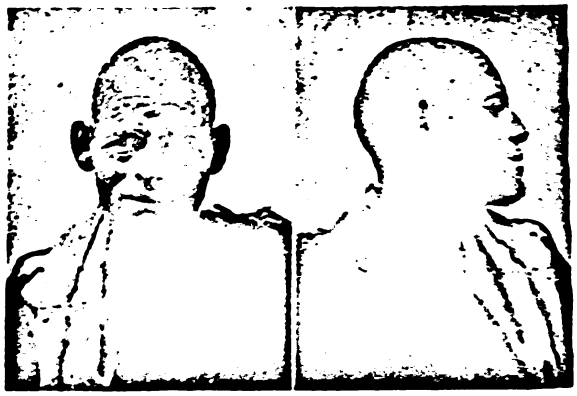
S. = 159.3
C. I. = 76
N. I. = 67

H. H. Gray
B. Gray
E. Green-brown

Msiwa

S. = 164.3
C. I. = 74.2
N. I. = 68

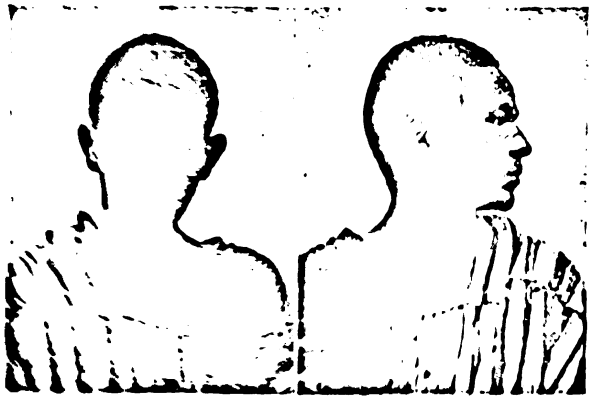
H. H. Black
B. Black
E. Light-brown



Msiwa

S. = 170.2
C. I. = 74
N. I. = 69

H. H. ——
B. Golden-red
E. Green-brown



Glawa

H. H. Black
B.

Msiwa

S. = 166.0
C. I. = 73
N. I. = 55

H. H. Black
B. Black-gray
E. Blue-brown(+-

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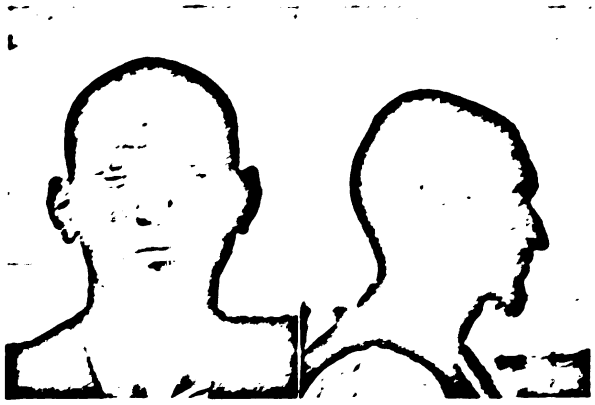
SHLUH FROM SOUS, AND DRAWA



Sous

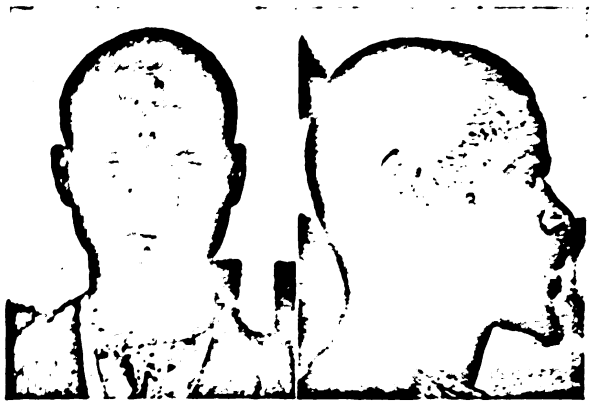
S. = 164.6
C. I. = 75
N. I. = 63

H. H. Black
B. Black
E. Dark-brown

Drawa

S. = 167
C. I. = 70
N. I. = 70

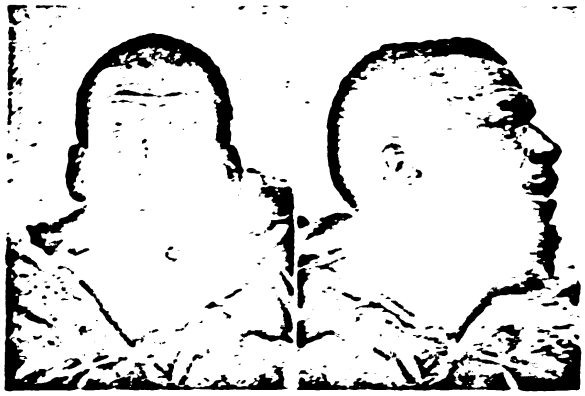
H. H. Dark-brown
B. Dark-brown
E. Light-brown



Sous

S. = 150.1
C. I. = 80
N. I. = 65

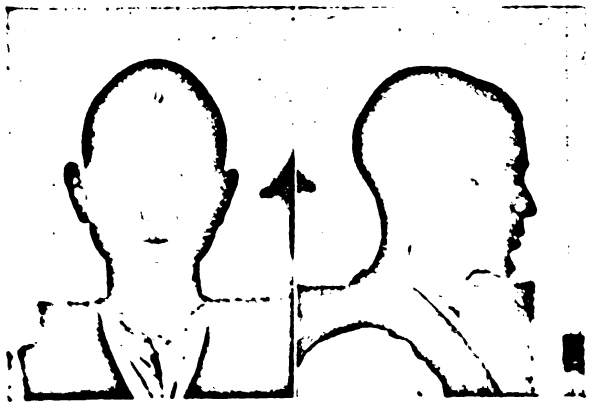
H. H. Black
B. Black
E. Dark-brown



Drawa

S. = 170
C. I. = 72
N. I. = 76

H. H. Black
B. Black
E. Green-brown(++)



Sous

S. = 165.3
C. I. = 74
N. I. = 61

H. H. [illegible]ok

Sous

S. = 159.6
C. I. = 75
N. I. = 58

H. H. Black
B. Black
E. Dark-brown

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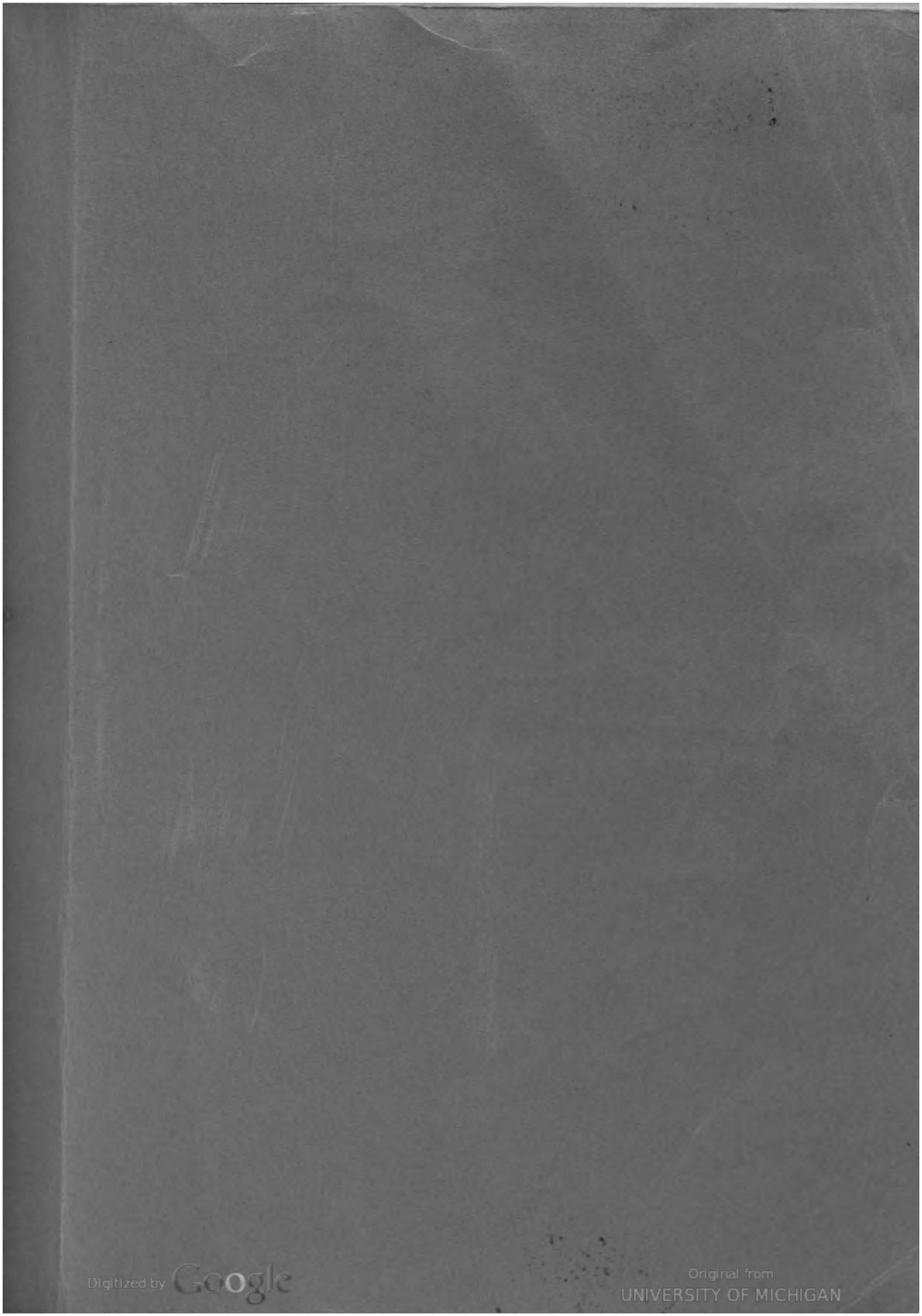
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